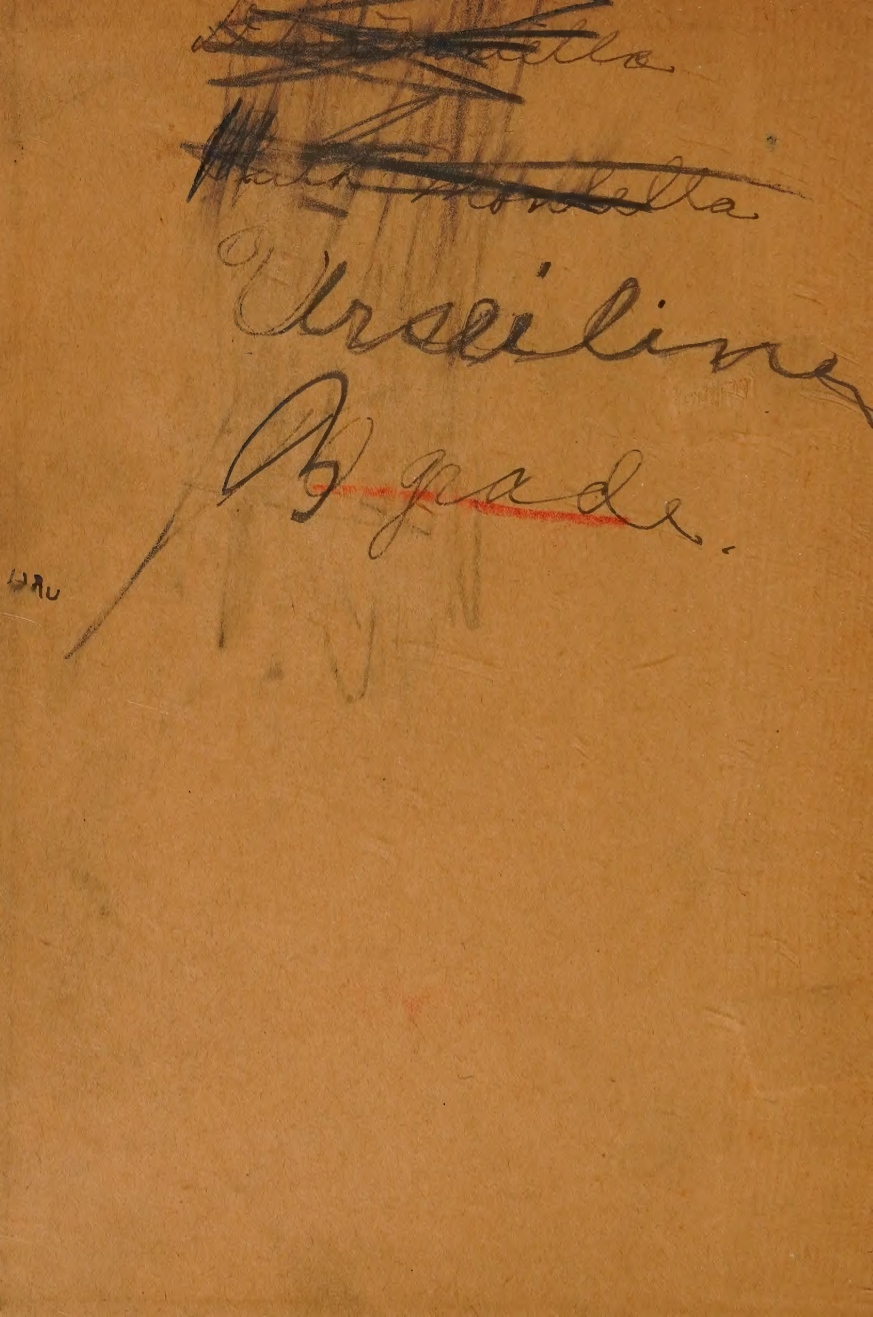
CLARK-OTIS-HATTON

MODERN SCHOOL ARITHMETIC

BOOK ONE



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MODERN-SCHOOL ARITHMETIC

BOOK ONE

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AUTHORS' PREFACE

THE authors of *Modern-School Arithmetic* believe that the usefulness of a textbook in arithmetic is determined by the extent to which it is built upon valid principles of psychology. *Modern-School Arithmetic* is founded upon the seven cardinal principles described in the following paragraphs.

1. **Child experience and interests.** Any one familiar with the interests and activities of children has only to examine the developments and problems in this book to appreciate the extreme care the authors have taken to bring these within child experience. The users of the experimental edition have frequently commented upon the ease with which pupils have comprehended the developments and problems as a result of this feature.

2. **Guidance in problem solving.** Doubtless one of the greatest deficiencies of arithmetic textbooks in the past has been their failure to provide adequate, systematic instruction in problem solving. In these books the authors have made a specialty of teaching children how to solve problems, and have presented a great variety of methods. Needless to say, every one of these methods has been tried and found successful. In these techniques of teaching problem solving, special attention has been given to providing for individual differences in ability. New methods of guidance in problem solving have been introduced which relieve the teacher of much individual work with slow pupils.

3. **Finely graded steps in presentation.** One of the chief sources of difficulty of pupils in understanding arithmetic has been the practice on the part of textbooks of thrusting upon the pupils two or three new processes at once. The authors of these texts have made a special point of analyzing each general skill psychologically for the purpose of presenting it to the pupils one step at a time; that is, in each "step" only one new element is introduced. The most careful try-out has demonstrated that

in no place are the pupils given more in one presentation than they can easily assimilate.

4. **Abundance of practice material.** Experience teaches that even with the best of developments, pupils require ample practice for the mastery of concepts and skills in arithmetic. If this is not provided in the textbook, the teacher must use up a portion of her busy day in making up or searching for supplementary practice material. To relieve the teacher of this irksome duty, the authors have provided a great abundance of practice material, both verbal and abstract. Care has been taken to provide a wide variety of types of material in order to make the practice more interesting to pupils.

5. **Diagnosis and remedial practice.** Doubtless the two greatest sources of waste in education are (1) the learning of things that are wrong and the consequent practice of error and necessary relearning, and (2) the over-practice on things that are already adequately learned. The authors have therefore introduced a means whereby the pupil may find out from time to time throughout the course "what he knows and what he doesn't know" in order that he may (1) discover and correct early any wrong learning or deficiency, and (2) avoid unnecessary over-practice on what he knows. The system of diagnosis has been worked out in great detail, so that for each specific deficiency the pupil is directed to a specific source of remedy. Here again individual differences are provided for. Moreover, all this is made practically automatic, so that a minimum amount of attention on the part of the teacher is required.

6. **Measurement of progress.** One of the greatest stimulants to learning is the conscious appreciation on the part of the pupil of his progress in the acquisition of knowledge. In order to take advantage of this fact, the authors have made it possible for the pupil to measure his progress at frequent intervals and to

record such progress in a vivid way. This is done by means of the Progress Tests (one at the end of each chapter) and the Progress Test Record (at the back of the book). Scientifically determined standards are provided for pupils of three general levels of ability. In order to compare pupils' scores with the *X*, *Y*, and *Z* standards on the Progress Tests, the teacher should allow not more than 20 minutes to a test.

7. **Experimental use before publication.** No series of textbooks can be accepted without hazard until after they have been subjected to actual classroom use and revised in the light of the criticisms of the teachers by whom they were used. The present edition of the books is the complete revision of the experimental edition, which was used by some 3000 children throughout the United States. The standards for the Progress Tests are based upon data submitted by the teachers of those children. The authors wish to take this opportunity to express their appreciation to the many teachers who coöperated in the experimental use of the books, for their searching criticisms and valuable suggestions.

In recognition of the fact that this text will be used by groups of children of widely varying ability, the authors have enriched the content so that it will meet the needs of the brighter groups and provide teachers of such groups with an ample amount of well-balanced teaching material. On the other hand, teachers of slower groups may omit that enriching material without detriment to the unity or coherence of the course and without lessening the chances of their pupils to measure up to the standards of the Progress Tests. It is recommended that teachers of slow groups and teachers of short-term schools omit starred pages.

Motivated Activities

In the so-called progressive schools we observe children finding many uses for number in their daily activities. Arithmetic

becomes essential to the child for satisfying participation in such activities as the following: keeping the weekly milk and school supply bills, keeping the daily temperature records, making costumes and building scenery for the class play, cooking, sewing, carpentry, pottery making, reading music, managing and depositing in the school bank, keeping the height and weight charts, financing and timing trips and excursions, measuring the water for the goldfish bowl, keeping score in all the games played, financing and sharing the cost of the class party, making the lemonade and popcorn balls for the class party, timing the activities of the day, using accurate measurements in the art work, etc. Such activities provide excellent motivation for the learning of arithmetic.

Full-page color plates are included in this book, depicting children happily engaged in such activities. These pictures are included for two purposes: (1) to suggest to the children the desirability of knowing arithmetic so that they may fully enjoy daily activities which require the use of number, and (2) to suggest to the teacher that she introduce into the classroom as many activities as possible which serve as motivation for the arithmetic work.

Teacher's Manual

As an aid to the teacher in making most effective use of this book and in fully understanding the viewpoint of the authors, there is provided a Teacher's Manual which contains page-by-page suggestions for teaching. The Introduction states the specific objectives of your grade and contains helpful suggestions regarding the teaching of problem solving, maintenance of interest, effective drill, games, home-work assignments, and a weekly schedule of work. The Manual contains a midyear examination and a final examination for your grade.

EDITOR'S PREFACE

THE writing of a superior set of textbooks in arithmetic is a rare achievement. A good arithmetic is made in the same way that an efficient automobile is achieved. The automobile industry first of all gets men of genius to design the machine. In the second place it invests money and effort in the laboratory and on the proving grounds. In this way the excellence of the new product is assured.

For precisely similar reasons the success of the Clark-Otis-Hatton arithmetics is assured. They have been produced by people with gifted pens and with the right training. The authorship combines (1) a keen, intimate insight into children's interests and capacities, making the books personal, engaging, and challenging; (2) an understanding of the psychology of acquiring meanings, insuring economical and thorough learning; and (3) broad scholarship in modern mathematical education, guaranteeing a happy relationship between the science of mathematics and the applications of the science to present-day social needs. This combination of qualities of authorship assures that the books are interesting to the pupil, easy to teach, effective in building up a sound mastery of the subject, and in harmony with modern educational theory and practice.

A complete printed experimental edition was tried out city-wide under the personal supervision of Miss Hatton. The city-wide trial under a supervisor who gives her full time to the study of pupil responses is undoubtedly an advance step in curricular research. In addition, the experimental edition was used and criticized by teachers of arithmetic in many cities. Consequently the teacher has the assurance that every unit is carefully developed in the light of the best modern practice and with a full knowledge of evidence secured through available investigations.

From my experience as a teacher and from the intimate knowledge of these books acquired by editing them, I predict that the Clark-Otis-Hatton arithmetics will be most favorably received by pupils, teachers, and students of education.

UNIVERSITY OF MICHIGAN RALEIGH SCHORLING

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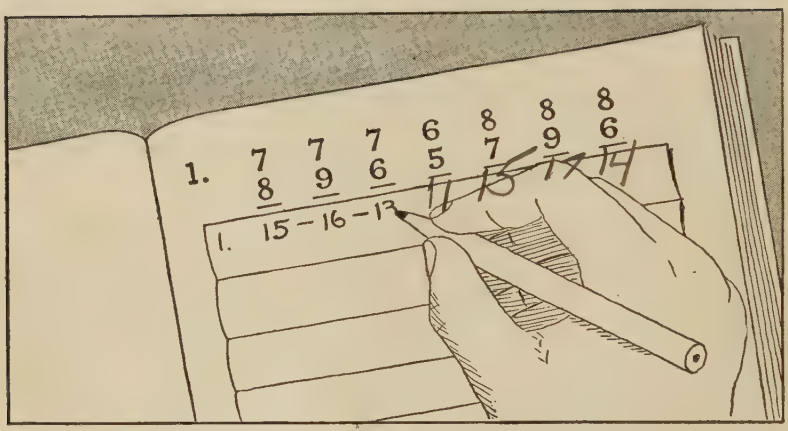
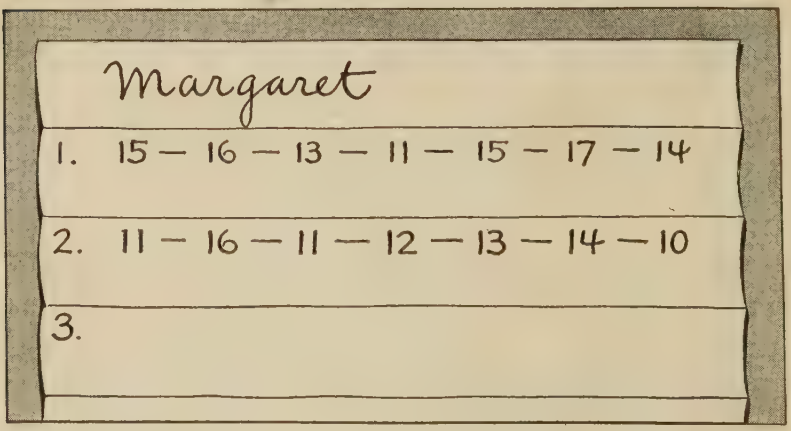


This picture shows how to write answers on folded paper without copying the examples. ***Never write in your book.***



This picture shows how your paper will look. (Don't forget to number each row.)

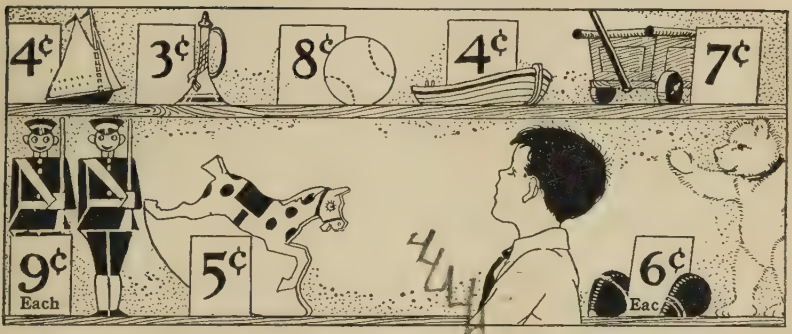
It is a good idea to put dashes between answers.

THIRD GRADE

CHAPTER I

ADDITION FACTS

Bobby in Toyland



Bobby wants a soldier and a boat. How much does a soldier cost? How much does a boat cost? How much must he pay for both? (If you do not know, look at the Study Helps at the bottom of the page. These show that 9 and 4 are 13, 6 and 5 are 11, 7 and 6 are 13, and so on.)

Tell how much he must pay for:

1. a ball and a horn.
2. a top and a horse.
3. a horn and a top.
4. a ball and a boat.
5. a wagon and a top.
6. a horn and a horse.

ADDITION STUDY HELPS

4	5	6	4	7	6	3	7	4	5
9	6	7	6	4	3	8	3	8	3
13	11	13	10	11	9	11	10	12	8

Learning to Add

When you say that 9 and 4 are 13, you are *adding* 9 and 4. The answer, 13, is called the *sum*.

When you *add* 6 and 5, the *sum* is 11.

When you *add* 4 and 7, the *sum* is what?

In adding you may write the example like this: →

$$\begin{array}{r} 7 \\ 4 \\ \hline 11 \end{array}$$

It is read, "4 and 7 are 11."

Can you tell what numbers belong in these blank spaces without looking at the Study Helps on page 1? If not, use the Study Helps. (*Never write in the blank spaces.*)

1. 9 and 4 are 13.
2. 7 and 6 are 13.
3. 6 and 5 are 11.
4. 6 and 4 are 10.
5. 4 and 7 are 11.
6. 8 and 3 are 11.
7. 3 and 6 are 9.
8. 3 and 7 are 10.
9. 8 and 4 are 12.
10. 3 and 5 are 8.

Read and add: (Begin this way: 8 and 4 are 12, 3 and 5 are 8, 1 and 5 are 6, etc.)

	a	*b*	*c*	*d*	*e*	*f*	*g*
11.	4	5	5	7	2	6	2
	8	3	1	3	2	3	1
	12	8	6	10	4	9	3
12.	3	3	4	1	7	6	7
	1	8	1	1	4	1	1
	4	11	5	2	11	7	8
13.	9	4	8	5	4	6	1
	1	6	1	6	9	7	3
	10	10	9	11	13	13	4

The Number Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1. Read the numbers in the chart from 1 to 100.

2. Count by 10's from 10 to 100; from 1 to 91.

3. Count by 10's from 3 to 93; from 7 to 97.

4. What number comes just before 60? just before 100? 85? 20? 41? 30? 50? 43? 70?

5. Name the next two numbers after 98; after 49; 68.

6. What number comes between 49 and 51? between 65 and 67? between 79 and 81? between 37 and 35?

7. Which is larger, 67 or 76? 74 or 47? 19 or 91?

8. Count from 5 to 100 by 5's; from 2 to 100 by 2's.

9. Count by 2's to 27, beginning 11, 13, 15, · · ·

10. Count to 87, beginning 17, 27, 37, · · ·

11. Ask your teacher to let you make a number chart like the one on this page.

The Play

The children in the Franklin School were giving a play. They sold tickets for two weeks. The teacher kept a record of the number of tickets sold each week. How many tickets did each pupil sell in the two weeks? (You may use the Study Helps at the bottom of this page.)

	George	Harry	May	Ted	Peggy
First week		7	5	8	9
Second week		9	9	9	3

	Mary	Grace	James	Ruth	Dot
First week	6	6	8	7	5
Second week	5	9	2	8	7

1. Did May sell more tickets than George?
2. Did James sell as many tickets as Peggy?
3. Who sold more tickets, Dot or Grace?
4. Did Grace sell more tickets than Ruth?

Addition Study Helps

8	7	6	6	5	7	5	8	8	9
5	9	8	9	7	8	9	9	2	3
13	16	14	15	12	15	14	17	10	12

Using + and =

Instead of writing 8 and 6 are 14, you may write $8 + 6 = 14$. It means the same and is read the same way.

The sign + means "and." It tells you to add.

The sign = means "is," "are," "equals," "equal," "is equal to," or "are equal to."

Do these additions:

1. $9 + 5 =$	**8.** $9 + 8 =$?	**15.** $9 + 6 =$?
2. $9 + 4 =$?	**9.** $4 + 7 =$?	**16.** $8 + 4 =$?
3. $7 + 6 =$?	**10.** $8 + 3 =$?	**17.** $8 + 6 =$?
4. $3 + 9 =$?	**11.** $8 + 7 =$?	**18.** $3 + 5 =$?
5. $6 + 5 =$?	**12.** $3 + 6 =$?	**19.** $9 + 7 =$?
6. $6 + 4 =$?	**13.** $7 + 5 =$?	**20.** $2 + 2 =$?
7. $2 + 8 =$?	**14.** $3 + 7 =$?	**21.** $5 + 8 =$?

Addition examples may be written in these three ways:

(1) 8 and 3 are 11

(2) $8 + 3 = 11$

(3)
$$\begin{array}{r} 3 \\ +\ 8 \\ \hline 11 \end{array}$$

Find the sum in each of these examples:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
22.	5	7	9	6	3	5	7	4	5	7
	5	9	2	8	2	7	8	3	9	2
23.	8	4	6	5	2	8	8	9	5	3
	5	2	9	2	6	9	2	3	4	3

An Easy Lesson

GEORGE MILLER	GRACE CLARK
Monday ★ ★	Monday ★ ★ ★
Tuesday ★ ★ ★	Tuesday ★ ★

The children in our schoolroom get stars for good work.

1. How many stars did George get on Monday? on Tuesday? during both days? $2 + 3 = ?$

2. How many stars did Grace get on Monday? on Tuesday? during both days? $3 + 2 = ?$

$2 + 3 = 5$ **$3 + 2 = 5$**

What are the missing numbers in each of these boxes?

3. 9 4 4 ? ? ?	**4.** 8 5 5 ? ? ?	**5.** 5 9 9 ? ? ?	**6.** 4 2 2 ? ? ?
7. ? 8 8 ? 15 ?	**8.** 2 ? 5 ? ? 7	**9.** 7 5 5 ? ? ?	**10.** 9 ? 6 ? ? 15
11. 4 3 3 ? ? 7	**12.** 4 8 8 ? ? ?	**13.** 9 7 7 ? ? ?	**14.** 9 5 5 ? ? ?
15. 5 8 8 ? ? ?	**16.** 2 ? 9 ? ? 11	**17.** 8 6 6 ? ? ?	**18.** 3 8 8 ? ? 11

Adding Scores

Louise and Charles were playing a game of ringtoss.

(1) When Louise took her first turn, she threw three rings on the peg; so her first score was 3. The next turn she did not get any rings on the peg; so her second score was *zero*. Zero is written 0. How many rings did she throw on the peg all together?

$$\begin{array}{r} 3 \\ 0 \\ \hline 3 \end{array}$$

(2) In his first turn Charles threw no rings on the peg; so his first score was 0. The next turn he threw three rings on the peg; so his second score was 3. In all, Charles's score was 3.

$$\begin{array}{r} 0 \\ 3 \\ \hline 3 \end{array}$$

1. Here are some points won by other children. Find the score of each child.

Carl	*Marie*	*James*	*Jean*	*Paul*	*Gladys*
2	2	0	1	3	0
1	0	2	3	3	0
3	2	2	4	6	0

2. Tell the answers:

a. $7 + 0 = 7$ $\quad 0 + 7 = 7$ $\quad$ *b.* $8 + 0 = 8$ $\quad 0 + 8 = 8$ $\quad$ *c.* $9 + 0 = 9$ $\quad 0 + 9 = 9$

Zero

The figure 0 is called zero. It means "not any" or "nothing." What is $0 + 7$? What is $7 + 0$? $0 + 4$? $4 + 0$?

7	0	4	0
0	7	0	4
7	7	4	4

1. Can you add all these in less than a minute?

1	0	2	0	0	0	7	0	0	0
0	3	0	6	8	4	0	5	9	0
5	0	6	0	3	0	8	4	0	9
0	1	0	2	0	0	0	0	7	0

In these examples there are two incorrect answers. How quickly can you find them?

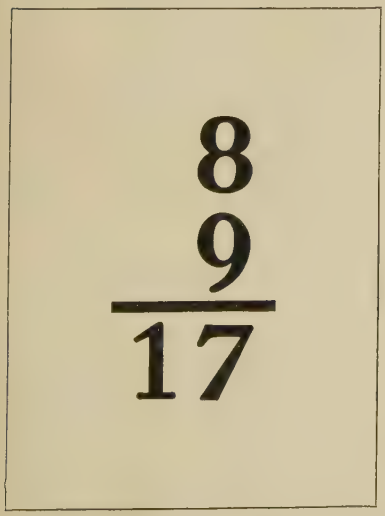
	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
2.	9	7	6	6	4	8	3	7	8	3
	4	6	5	4	7	3	6	3	4	5
	13	13	11	10	11	11	9	10	12	8
3.	5	9	8	9	7	8	9	9	7	3
	8	7	6	6	5	7	5	8	3	9
	13	16	14	15	12	15	14	17	10	12
4.	2	4	2	2	3	2	6	2	2	2
	9	5	7	3	4	5	2	8	7	4
	11	9	9	5	9	7	8	10	9	6
5.	8	4	7	9	6	1	1	1	1	1
	8	4	7	9	6	2	9	4	5	6
	16	8	14	18	12	3	10	5	6	7
6.	0	2	2	7	4	4	4	6	8	8
	6	6	7	4	3	8	3	7	9	0
	6	8	9	11	7	12	8	13	17	8

Help-Yourself Cards

Nancy has made herself a pack of Help-Yourself Cards.[1] On the front of each card is an addition example. On the back of the card the example is written with the answer. Nancy looks at the front of each card and says the answer as quickly as she can. Then she looks at the back of the card to see if she said it correctly. If she did, she puts it in her "Know" pile. If she didn't, she puts it in her "Don't-Know" pile. After she has finished, she studies all the examples in her "Don't-Know" pile very carefully. When she thinks she knows them, she mixes them with the cards in her "Know" pile. The next day she tests herself again to see if she can give every answer correctly.

Perhaps you would like to make a set of cards for yourself like Nancy's and see how quickly you can learn to say all the answers correctly.

Make the figures large like those shown at the left.



[1] NOTE TO THE TEACHER. *Modern-School Individual Number Cards* in addition, subtraction, multiplication, and division, made for this purpose, may be obtained from World Book Company, Yonkers-on-Hudson, New York. If the pupils make their own cards, let them use the combinations in the tests on pages 19 and 20.

Addition Practice

Write the answers to these examples on folded paper. If you get any wrong, practice on those until you are sure you know them. Then see if you can do *all* the examples correctly.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	7	7	7	6	8	8	8
	8	9	6	5	7	9	6
2.	6	8	8	7	9	5	3
	5	8	3	5	4	9	7
3.	9	7	7	0	6	0	3
	9	6	4	3	9	9	9
4.	3	5	8	7	4	8	8
	8	3	3	5	6	6	4
5.	7	9	9	9	9	8	8
	8	5	4	8	6	8	7
6.	7	8	9	7	9	7	8
	4	9	9	8	4	9	2
7.	0	5	9	9	5	8	3
	6	8	6	9	9	9	0

(1) We want to buy a plant for each window in our schoolroom. There are 3 windows on the side and 5 windows in the back of the room; so we need __ plants.

(2) There are 8 girls and 7 boys in our little play. That makes __ children all together.

(3) I have 8 paper dolls, but my sister said she is going to give me 3 more. When I get those, I'll have __ paper dolls.

More Addition Practice

Write the answers to these examples on folded paper. Don't forget to practice on those you get wrong, until you are sure you know them. Then do all the examples again.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	8	3	9	5	7	5	6
	4	7	5	6	4	4	9
2.	0	4	5	6	7	7	4
	5	3	6	9	3	7	5
3.	6	8	6	8	6	9	5
	6	7	3	6	8	4	6
4.	5	7	9	9	0	2	6
	8	9	6	8	2	0	7
5.	5	9	6	5	6	9	9
	6	8	5	8	8	2	7
6.	6	4	9	7	8	9	9
	8	8	5	6	1	3	6
7.	8	5	3	5	2	8	5
	8	9	9	6	9	4	8

(1) Tom has 8 marbles. He said, "If I get 8 more marbles, I'll have ___ marbles."

(2) There are going to be 6 girls and 6 boys at my party. I want to give each child a paper hat. I need ___ hats all together.

(3) We needed 12 sheets of red paper for some fruit baskets. Our teacher had 4 sheets of red paper. She asked me to go over and ask the second-grade teacher for 8 sheets. If I get those, shall we have enough paper for our baskets?

United States Money

CENT
1¢

NICKEL
5¢

DIME
10¢

QUARTER
25¢

1. A five-cent piece is called a Nickel
2. A ten-cent piece is called a Dime
3. A twenty-five-cent piece is called a Quarter
4. The sign ¢ means cents.
5. A dime is worth 10 cents.
6. A dime is worth 2 nickels.
7. A quarter is worth 5 nickels.
8. A quarter is worth a dime and 3 nickels.
9. A quarter is worth 2 dimes and a nickel.
10. Is a dime worth a nickel and 5 pennies? yes

11. Write in another way: eight cents; twelve cents; thirty-one cents; forty-two cents; eighty cents.

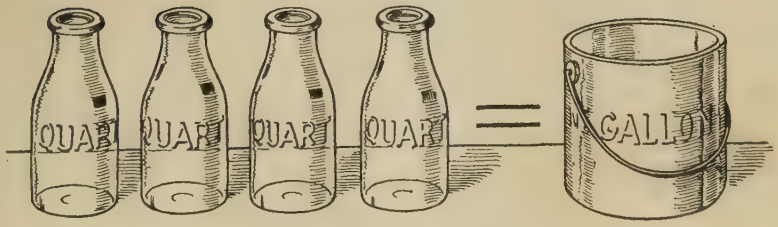
12. Now let's go back to Toyland on page 1. With a dime can you buy a soldier? a horse and a horn? a horn and a ball? a top and a horse?

Practice in Adding Cents

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
13.	5¢	3¢	8¢	9¢	6¢	4¢	5¢	3¢	8¢
	4¢	9¢	5¢	4¢	8¢	3¢	3¢	7¢	4¢
	9¢	12	13	13	14			10	12

Some Things You Know

2 pints (pt.) = 1 quart (qt.)



4 quarts (qt.) = 1 gallon (gal.)

1. A gallon of water equals 4 quarts of water.
2. A quart of milk equals 2 pints of milk.
3. A gallon of milk will fill 4 quart bottles.
4. A quart of milk will fill 2 pint bottles.

12 inches (in.)	**= 1 foot (ft.)**
3 feet (ft.)	**= 1 yard (yd.)**
36 inches (in.)	**= 1 yard (yd.)**

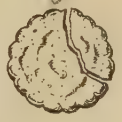
5. Ask your teacher to draw about 12 lines on the board, and to let you guess how long each one is. Then she may let you measure to see how nearly right you were.
6. A yard of ribbon is ___ inches of ribbon.
7. A board that is a foot wide is ___ inches wide.
8. Three feet is the same as ___ inches or ___ yard.

Sharing Things

(1) If you divide a cooky into two *equal* parts and give one piece to your sister, you say you give her *one half* of your cooky.

(2) If you divide the cooky into three equal parts, each part is called *one third* of the cooky.

(3) If you divide the cooky into four equal parts, each part is called *one fourth* of the cooky.



(4) Here is a cooky divided into two parts. Is each part one half of the cooky? Why not? To give some one half a cooky you must divide it into two 2 parts.

$\frac{1}{2}$ = one half	$\frac{1}{3}$ = one third	$\frac{1}{4}$ = one fourth

1. If two boys share a cooky equally, each gets ___ part of it.

2. If three boys share a cooky equally, each gets ___ ___ of it.

3. How many fourths of a cooky are there in a cooky?

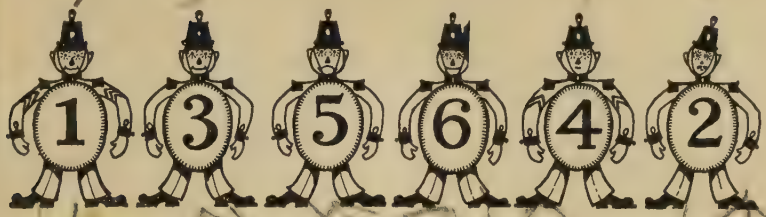
4. If a quart bottle is one-half full, it contains a ___ of milk. A pint of milk is ___ ___ of a quart of milk.

5. If a gallon can is one-fourth full, it contains a ___ of milk. You could pour ___ more quarts into the can.

6. Draw a line a yard long. Divide it into 3 equal parts. Each part is ___ foot or ___ inches long. A foot is ___ ___ of a yard.

7. Which is larger, $\frac{1}{2}$ of a peppermint stick or $\frac{1}{4}$ of it?

Finding Scores



Some children put up these six targets and took turns trying to knock them over by rolling a ball. Each child rolled the ball three times. They found their scores by adding the numbers on the targets they knocked over. When they did not hit a target they got 0 for that roll.

1. What scores did these children get? (When you are adding May's score, think, "2 and 5 are 7, and 0 are 7." Then say the 7.)

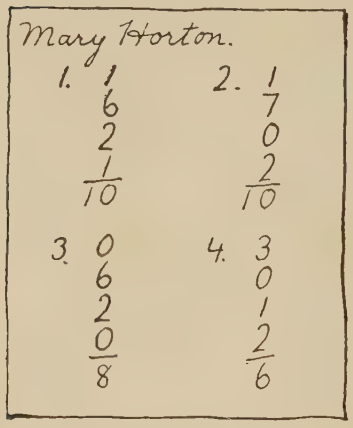
May	*Bob*	*Dick*	*Jack*	*Tom*	*Alice*	*Jane*	*Mildred*
0	2	1	4	1	1	2	0
5	2	4	5	4	3	0	0
2	1	2	0	4	5	6	0

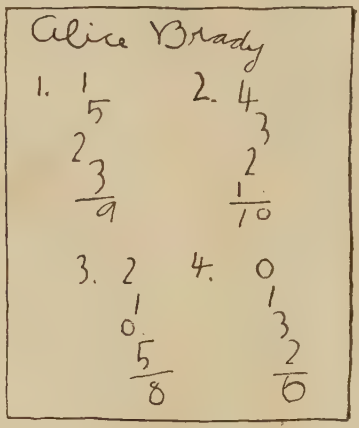
2. These children had four turns. What were their scores? (Begin at the bottom and add upward.)

Ted	*Jim*	*Fred*	*Rita*	*Sara*	*Peter*	*Harry*	*Florence*
1	0	1	1	2	0	0	4
3	0	2	1	1	2	3	0
3	6	2	3	2	5	2	4
3	3	4	5	4	0	6	2

3. Which one of the children above got the highest score? How many children got a score of 10 or more?

Can you find any mistakes in Mary's work? in Alice's?





Why do you think Alice made a mistake?

Copy these examples. *Add upward.* (Be sure to keep the columns straight.)

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	3	6	6	8	9	6	4	9
	5	4	3	2	5	3	4	1
	4	3	5	5	4	3	4	5
	12	13	14	15				
2.	2	4	3	1	1	1	2	1
	4	3	0	2	2	3	3	6
	3	1	1	3	4	2	5	2
	0	2	2	4	1	0	0	1
3.	0	1	0	4	1	2	0	1
	7	0	2	0	3	0	2	3
	1	7	1	5	5	3	5	4
	2	1	7	0	0	1	2	0

How much water do you give your goldfish?
NAME OF FISH
LENGTH OF FISH
AMOUNT OF WATER
SPEED 4 IN. 4 GAL.
DART 3 IN. 3 GAL.
WIGGLE 2 IN. 2 GAL.
F and M Hoppes

Telling Missing Numbers

1. Tell what numbers belong in these blanks:

a. 10¢ = 1 dime, so 30¢ = 3 dimes.
b. 44¢ = 4 dimes and 4 cents.
c. 75¢ = 7 dimes and 5 cents.
d. 98¢ = 9 dimes and 8 cents.
e. 30 = 3 tens.
f. 44 = 4 tens and 4 ones.
g. 75 = 7 tens and 5 ones.

2. How many tens and how many ones are there in 23? in 49? 57? 25? 76? 67? 99? 86? 68? Do you see an easy way to tell how many tens and how many ones there are in a number?

3. Write the number that has:

a. 3 tens and 7 ones.
b. 7 tens and 3 ones.
c. 8 tens and 5 ones.
d. 5 tens and 8 ones.

4. 2 dimes and 5 cents are 25 cents.
5. 3 dimes and 2 cents are 32 cents.
6. 2 cents and 5 cents are 7 cents.
7. 3 dimes and 2 dimes are 5 dimes.
8. 5 dimes and 7 cents are 57 cents.

9. Add:

2 dimes	5 cents	25 cents
3 dimes	2 cents	32 cents
? dimes	? cents	?? cents

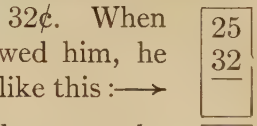
10. Add:

2 tens	5 ones	25
3 tens	2 ones	32
? tens	? ones	??

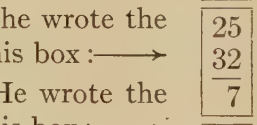
11. Complete: 32 cents and 25 cents are ___ cents.
12. If I add 32 and 25, my answer is ___.

Alice at the Store

Alice went to the store yesterday and bought a sponge cake costing 25¢, and some fruit costing 32¢. When the grocer wanted to find what she owed him, he *added* 25 and 32. He wrote the example like this :—→

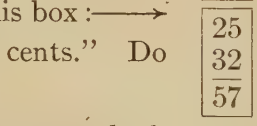


(1) He thought, "2 and 5 are 7," and he wrote the 7 right under the 2 and 5 as shown in this box :—→



(2) He thought, "3 and 2 are 5." He wrote the 5 right under the 3 and 2 as shown in this box :—→

(3) He said to Alice, "Your bill is 57 cents." Do you think he was right?



1. Here are some more examples the grocer had. Can you find what the bill was in each case?

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
53	12	52	19	70	86	75	26	60
33	87	10	60	25	11	22	50	23

2. Copy and add :

94	47	45	33	40	84	14	53	10
11	90	70	92	87	20	52	60	11
105								

3. I heard Mary say that she had 22 words wrong and 13 words right in a spelling test. There must have been ___ words in the test.

4. Fred earned 60¢ and his mother is going to give him 25¢. Fred said, " I'll have 85¢ then." Will he?

5. George bought 13 copies of the *Post* last week and sold them all. This week he thinks he can sell 13 copies more than he did last week. How many copies should he buy this week?

Add

Test on Addition Facts

Write the answers to these examples on folded paper. If you have an error in any row, do the examples in that row until you get every one correct.

1.	7 1 8	2 9 11	2 5 7	2 8 10	4 4 8	4 1 5	3 1 4
2.	7 7 14	2 0 2	6 1 7	5 4 9	3 3 6	1 1 2	9 2 11
3.	1 7 8	2 1 3	2 2 4	5 5 10	0 7 7	0 1 1	7 2 9
4.	6 2 8	0 4 4	3 6 9	0 2 2	2 4 6	3 0 3	4 5 9
5.	8 2 10	6 4 10	0 4 4	9 1 10	5 0 5	6 6 12	3 2 5
6.	2 6 8	9 3 12	0 6 6	6 5 11	3 8 11	3 4 7	3 9 12
7.	7 3 10	2 7 9	8 4 12	4 8 12	8 0 8	1 0 1	5 2 7

Test on Addition Facts

Write the answers to these examples on folded paper. If you have an error in any row, do the examples in that row until you get every one correct.

1.	0 3	0 5	5 1	7 0	8 5	7 9	5 8
2.	5 7	7 8	8 7	9 6	5 9	8 9	8 6
3.	9 5	9 4	6 7	0 0	5 6	4 6	7 6
4.	1 8	9 9	1 2	5 3	1 5	9 0	8 8
5.	1 3	2 3	6 8	6 9	3 5	6 3	1 9
6.	0 9	8 1	9 8	3 7	4 7	4 2	0 8
7.	6 0	8 3	7 5	4 9	7 4	9 7	4 3

Practice in Adding

Do these additions: (Use folded paper.)

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	60	66	70	72	97	71	95
	92	82	93	81	50	57	33
2.	90	81	96	82	52	57	40
	65	60	71	73	92	52	78
3.	53	61	85	93	52	67	78
	71	72	94	66	84	62	71
4.	70	72	92	50	54	83	95
	50	66	84	62	75	86	93

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
5.	2	7	2	8	6	6	4	8
	8	7	9	8	9	8	6	5
6.	5	7	7	7	9	6	9	9
	5	4	8	5	8	5	2	5
	2	5	1	4	1	4	6	3
7.	9	5	6	5	5	5	7	6
	3	3	5	7	1	2	1	4
	2	6	4	2	8	7	5	3
8.	7	5	5	9	6	7	7	8
	2	4	5	2	5	3	5	5
	3	3	2	4	4	5	4	2
9.	9	9	9	4	9	7	4	9
	5	3	2	8	9	0	0	6
	3	3	2	0	0	4	9	3

What You Have Learned

(Do not use a pencil.)

1. Count by 2's from 2 to 20.
2. Count by 5's to 100, beginning 5, 10, 15, · · ·
3. Is a pint of milk one half of a quart of milk?
4. There are ___ in. in a foot, and ___ ft. in a yard.
5. One fourth of a gallon of gasoline is a ___ of gasoline.
6. Read these: 72¢; 67¢; 27¢.
7. How much money is a nickel and three cents?

Add these: (Don't forget to begin at the bottom.)

	a	*b*	*c*	*d*	*e*	*f*
8.	0	1	1	0	5	2
	2	0	2	1	3	4
	4	4	2	2	1	1
	4	5	3	4	5	3
9.	34	34	12	31	22	33
	25	53	76	63	74	44

Problems.

10. Marie's mother is making her a Halloween costume. The pattern says the costume needs 14 bells down the front and 12 bells on the cap. How many bells are needed?

11. When we get 40 perfect papers in spelling, the teacher writes our names on the board as "Honor Pupils." I had 18 perfect papers last month and 21 this month. Am I an honor pupil?

12. James had 15 perfect spelling papers last month and 23 perfect papers this month. Is he an honor pupil?

Progress Test No. 1

In taking this test you need not copy the examples. Just write the answers on your test paper. Be sure to number your answers. *Never write answers anywhere in your book.* You may use scratch paper if you need to. (Keep a record of your score on the Progress Test Record at the back of the book.)

Add:

1. 9 9	**2.** 9 8	**3.** 9 6	**4.** 6 7	**5.** 8 5	**6.** 9 4
7. 9 7	**8.** 5 9	**9.** 12 76	**10.** 33¢ 54¢	**11.** 2 0 5 2	**12.** 4 2 5 2

13. $7 + 4 = ?$

14. 9 more than 2 is?

15. 8 added to 8 is?

16. What are 8 and 6?

17. Add 33 and 56.

18. Thirty-two and forty are?

19. A nickel and 4 cents are ___ ¢.

20. 5 nickels and a dime are ___ ¢.

21. Is 2 qt. of milk more than 3 pt. of milk?

22. Is a rope 1 yd. long as long as a rope 40 in. long?

23. Which is more, $\frac{1}{4}$ of an apple or $\frac{1}{2}$ of an apple?

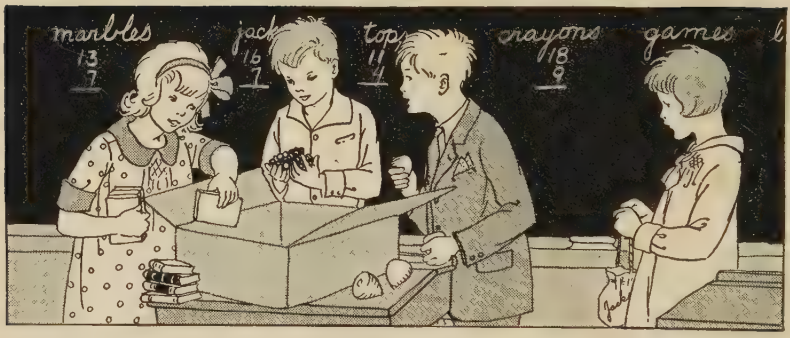
24. We drove 36 miles this morning and 23 miles this afternoon. How far did we drive all together today?

Standards: X, 21. Y, 19. Z, 16.

CHAPTER II

SUBTRACTION FACTS

The Christmas Box



The boys and girls in the third grade each put some toys into a toy box for poor children last Christmas. Tom had 13 marbles. He gave away 7 of them. How many had he left? If you do not know, look at the Subtraction Study Helps below.

How many toys did each of these boys and girls have left?

1. Grace had 16 jacks. She put 7 of them into the box.
2. Billy put 4 of his 11 tops into the toy box.
3. Evelyn gave away 9 of her 18 crayons.
4. Ted had 15 marbles and gave 6 of them away.

SUBTRACTION STUDY HELPS

13	16	13	12	11	16	18	11	15	11
5	7	7	5	4	8	9	9	6	6
8	9	6	7	7	8	9	2	9	5

Learning to Subtract

In subtracting you may write the example this way: Always put the larger number above. It is read, "4 from 11 is 7."

$$\begin{array}{r} 11 \\ 4 \\ \hline 7 \end{array}$$

The first Subtraction Study Help on page 24 is read, "5 from 13 is 8." Read the others.

Can you tell what numbers belong in these blank spaces without looking at the Subtraction Study Helps on page 24? If not, go back and study those facts.

1. 8 from 16 is ___.
2. 6 from 15 is ___.
3. 7 from 13 is ___.
4. 5 from 13 is ___.
5. 4 from 11 is ___.
6. 9 from 11 is ___.
7. 6 from 11 is ___.
8. 5 from 12 is ___.
9. 9 from 18 is ___.
10. 7 from 16 is ___.

To find how much you have left when you take a number from a larger number, you ***subtract.***

Read and subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*
11.	10	4	13	6	16	2	15
	1	1	5	1	8	1	6
12.	12	3	13	9	18	1	11
	5	1	7	1	9	1	6
13.	8	3	5	16	11	11	7
	1	2	1	7	9	4	1

14. Kathryn had 12¢ in her bank. She took 5¢ out to buy a pencil. How much has she left in her bank?

15. Carl has 16¢. If he buys a 7-cent horn, how much will he have left?

More Subtracting

Can you answer these questions? If not, look at the Subtraction Study Helps below.

1. We need 17 flags in our flag drill. The teacher has 9. How many more must she get?

2. Billy wants to buy a toy wagon that costs 15¢. He has 7¢. How much more does he need?

3. I am inviting 14 children to my birthday party. I have written 6 invitations. How many more must I write?

4. Teddy is 9 years old. He wants to go to "Training Camp" this summer, but no boys younger than 14 years may go to the camp. Teddy said, "That means I'll have to wait ___ years before I can go."

Learn the Subtraction Study Helps at the bottom of the page, then tell what numbers belong in these blank spaces.

5. 9 and ___ are 14.

6. 4 and ___ are 13.

7. 9 and ___ are 17.

8. 7 and ___ are 15.

9. 6 and ___ are 14.

10. 7 and ___ are 9.

11. 7 and ___ are 12.

12. 3 and ___ are 11.

13. 3 and ___ are 12.

14. 5 and ___ are 8.

To find how many things you need to put with what you have so that you will have a certain larger number, you **subtract**.

SUBTRACTION STUDY HELPS

14	13	9	17	15	11	14	12	12	8
9	4	2	9	7	3	6	3	7	5
5	9	7	8	8	8	8	9	5	3

The Twins' Birthday Party

Dorothy and Donald White are twins. They were 8 years old yesterday, and they had a birthday party.

1. They had invited 10 girls and 6 boys to the party. Donald said, "That means there will be ___ more girls than boys. I'm going to invite Bill, Ted, Jack, and Bob."

2. After Donald invited these boys, was the number of boys invited the same as the number of girls?

3. They had a cracker-eating contest at the party. In one minute Tom ate 9 crackers and Hilda ate 6. Tom won the contest; he ate ___ more crackers than Hilda.

4. When the children were at the table, Dorothy took a deep breath and blew out 4 candles with one "puff." Then the candles were lighted again and Donald gave a big "blow." He blew out 7. Donald said, "I blew out ___ more than you did, Dorothy."

To find how much larger or smaller one number is than another, you ***subtract.***

Subtraction Study Helps

10	14	12	10	7	12	10	10	9	9
3	7	8	8	4	9	5	6	4	6
7	7	4	2	3	3	5	4	5	3

Problems

1. I had 12 pennies in my pocket today. I must have lost ___ of them, because when I reached home I had only 3 pennies.

2. Mrs. Baker had 12 apples in the fruit basket. When Wilbur came home from school, he said, "Mother, may I have some apples?" He must have taken ___, because there were only 9 left in the basket after he had gone.

3. I picked up a great big juicy orange from the fruit stand this morning and handed the man a dime. He gave me 2¢ change; so the orange cost ___.

4. We had 15 big red balls for our Christmas tree last year, but this year there are only 7. I wonder who broke those other ___ balls.

5. There are 17 cards in my game of "Big Ben." I can find only 9. Will you help me find the other ___ cards?

To find how many were taken away, when you know how many you had in the beginning and how many are left, you ***subtract.***

Be sure you know the Subtraction Study Helps on pages 24, 26, and 27 before you try these subtraction examples.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
6.	13	14	13	10	12	14	11	12	18	10
	5	9	4	3	5	7	4	8	9	8
7.	9	16	17	13	7	12	16	15	10	8
	2	7	9	7	4	9	8	6	5	5
8.	15	11	11	14	10	11	12	9	12	9
	7	3	9	6	6	6	3	4	7	6

Can You Tell?

The children in the problems below are third-grade children who are poor in arithmetic. Can you tell them whether to *add* or *subtract* to find out what they want to know? (If you want to, you may tell them the answers, too.)

1. May has a nickel and wants to buy an 8-cent ball. To find how much more money she needs, she must ___.

2. Jack was going to take a package to the post office to mail it. He said to his mother, "I have 9¢. Will that be enough?" She answered, "No, I think it will be 15¢." To find how much more money to take, Jack must ___.

3. Robert had 13 marbles in his pocket. The teacher took 7 that rolled on the floor. Robert can find how many are left in his pocket without counting if he ___.

4. Eight of us plan to go on a picnic. The truck in which we are going holds 15 people, and we have decided to invite enough children to fill it. To find how many more to invite, we must ___.

5. Bob is 8 years old. Ted said, "I'm 6 years older than you." To find Ted's age, Bob must ___.

6. Mary's teacher gave 14 examples. Mary had answered only 9 when the teacher collected the papers. To find out how many she hadn't answered, Mary must ___.

7. Billy had a nickel. Bob said, "I have 8¢ more than you." To find out how much Bob has, Billy must ___.

Checking Subtraction

Henry's mother gave him a dime, and sent him to the store for a spool of thread. The thread cost 7¢. When Henry came home, he handed his mother the spool of thread and 3¢ change.

His mother said, "Henry, I believe you lost a penny."

Henry said, "I'm sure I didn't. The 7¢ I paid for the thread and the 3¢ change equal the 10¢ you gave me."

His mother said, "You are right."

I wonder if Henry knew that he was *checking* subtraction. When 7 is subtracted from 10, ___ is left. (3 is left. 7 is subtracted. 3 + 7 = 10.)

10
7
3

When you add the number left and the number subtracted, the sum should equal the top number.

Below are some subtraction examples. In each case,

(1) tell what is subtracted,

(2) tell what is left,

(3) and tell the sum of what is left and what is subtracted.

(If this sum is not the same as the top number, you have made a mistake and must do the example again.)

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	7	10	14	11	14	13	16	10	14
	4	6	6	7	9	8	8	5	7
2.	11	12	13	12	15	12	10	16	15
	6	9	6	7	8	6	7	9	6
3.	15	12	13	16	17	13	12	11	14
	7	3	5	7	8	9	5	5	6

Large Numbers

1. Count by 10's from 10 to 100.

2. Count by 100's to 1000 beginning 100, 200, · · ·

3. Count from 96 to 112.

4. Count from 286 to 307.

5. Count by 10's from 225 to 345.

6. Count by 100's from 137 to 937.

7. Forty-five means ___ tens and ___ ones.

8. Two hundred forty-three means ___ hundreds, ___ tens, and ___ ones.

9. Five hundred sixty-seven means ___ hundreds, ___ tens, and ___ ones.

10. Six hundred ninety-nine means ___ hundreds, ___ tens, and ___ ones.

11. Six numbers can be made using 5, 7, and 2. One is 527. Can you make the other five numbers? Which is the largest? Which is the smallest?

12. Read each of these numbers:

a.	*b.*	*c.*	*d.*	*e.*
169	534	254	841	119
308	569	869	732	508
400	540	700	76	496

13. Write each of the numbers from:

a. one hundred six to one hundred eleven.

b. two hundred ninety-seven to three hundred five.

c. three hundred ninety-nine to four hundred seven.

14. Name the number that comes before and the number that comes after each of these numbers:

a. 99 *b.* 500 *c.* 449 *d.* 650 *e.* 799

Something Easy in Subtraction

If you want to subtract 6 from 10, you may write $10 - 6 = 4$. This is read, "Six from ten is four."

The sign − always tells you to subtract.

What sign tells you to add?

Ted and Marie each had 5 cents.

(1) Ted spent 3¢. He had ___ cents left. $5 - 3 = ?$

(2) Marie spent 2¢. She had ___ cents left. $5 - 2 = ?$

$$5 - 3 = 2$$
$$5 - 2 = 3$$

What is the missing number in each of these?

1. $16 - 7 = ?$, $16 - 9 = ?$

2. $15 - 6 = ?$, $15 - 9 = ?$

3. $17 - 9 = ?$, $17 - 8 = ?$

4. $13 - 9 = ?$, $13 - ? = 9$

5. $13 - 8 = ?$, $13 - ? = 8$

6. $14 - ? = 8$, $14 - 8 = ?$

7. $11 - ? = 7$, $11 - 7 = ?$

8. $13 - 6 = ?$, $13 - ? = 6$

9. $15 - 8 = ?$, $15 - ? = 8$

Subtract:

	a		*b*		*c*		*d*		*e*	
10.	11	11	11	11	12	12	8	8	9	9
	5	6	8	3	4	8	5	3	2	7
11.	10	10	9	9	7	7	12	12	10	10
	6	4	3	6	4	3	7	5	7	3
12.	14	14	15	15	13	13	15	15	13	13
	5	9	7	8	6	7	6	9	5	8

11 hours
1½ hours
3 hours
5 hours
F and M Hoopes
How long do you spend in bed? at meals?
at school? at healthful play?

Zero in Subtraction

Mr. Reed gave each of his 3 boys a nickel this morning.

(1) Tom spent 3¢. He has ___ ¢ left. $5 - 3 = ?$

(2) Fred spent 5¢. He has ___ ¢ left. $5 - 5 = ?$

(3) Norman spent nothing. He has ___ ¢ left. $5 - 0 = ?$

(4) I had nothing and spent nothing. $0 - 0 = ?$

Can you find three mistakes in these subtraction examples?

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
1.	1	3	2	6	8	7	5	5	9	6
	0	3	0	6	8	0	0	5	0	0
	1	0	2	0	8	7	5	0	9	6
2.	9	3	7	8	4	1	6	2	4	9
	9	0	7	0	0	1	0	2	4	9
	0	3	0	8	4	0	6	0	0	0
3.	9	4	5	5	9	6	8	4	6	5
	8	2	4	3	8	5	4	3	3	2
	1	2	1	2	1	1	4	1	3	3
4.	6	7	8	9	7	10	6	11	8	7
	4	5	7	5	6	2	2	2	6	2
	2	2	1	4	1	8	4	9	2	2
5.	8	13	16	13	13	15	17	17	13	13
	0	9	7	7	9	7	8	9	4	5
	8	4	9	6	4	8	9	8	9	8
6.	15	13	12	14	16	18	9	12	14	11
	8	6	6	7	8	9	9	3	6	3
	7	7	6	7	8	9	0	9	8	8
7.	13	11	12	12	11	15	15	7	12	7
	8	7	5	7	9	6	9	4	8	3
	5	4	7	5	2	9	6	3	3	4

Subtraction Practice

Write the answers to these subtraction examples on folded paper. If you get any wrong, practice on those until you are sure you know them; then do all the examples again.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	14	11	14	13	10	16	10
	6	7	9	8	6	8	5
2.	12	13	12	12	13	15	12
	9	6	7	3	7	8	6
3.	12	15	17	11	11	15	10
	5	6	8	9	3	9	9
4.	10	13	11	14	10	15	11
	2	4	5	5	1	7	8
5.	14	12	17	16	12	3	10
	8	4	9	7	8	0	6
6.	14	2	11	14	13	7	10
	6	0	7	9	8	0	5
7.	12	13	4	12	12	13	15
	9	6	0	7	3	7	8

Oral Practice

(1) 10 is ? more than 3.
(2) 3 is ? less than 7.
(3) 14 is ? more than 7.
(4) 8 is ? less than 12.
(5) 9 is ? less than 15.
(6) 9 is 6 less than ?
(7) 15 is ? more than 8.
(8) 7 is 8 less than ?
(9) 14 is ? more than 8.
(10) 18 is ? more than 9.

More Subtraction Practice

Write the answers to these examples on folded paper. If you get any wrong, practice on those until you are sure you know them. Then do all the examples again.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	16	12	15	17	11	11	15
	9	5	6	8	9	3	9
2.	18	10	13	11	14	10	15
	9	2	4	5	5	1	7
3.	13	14	12	17	16	12	5
	9	8	4	9	7	8	0
4.	14	10	11	9	16	5	11
	7	4	6	5	8	0	8
5.	11	10	16	14	10	11	8
	2	7	9	7	4	6	5
6.	10	13	18	12	11	10	11
	2	5	9	6	2	7	4
7.	11	10	13	10	10	13	9
	4	8	9	9	2	5	4

(1) Mary wants to buy a doll that costs a dime. She has only 4¢. How much more money does she need?

(2) Mrs. Smith needs a dozen eggs. She has only 7; so she must get ___ more.

(3) Harry has 9 apples. If he gives away 5 of them, how many will he have left?

(4) Ted had 11 little chickens. Now he has only 8. He said, "The cat must have caught my other ___ chickens."

HALF DOLLAR
50¢

DOLLAR
100¢ or $1.00

1. A fifty-cent piece is called a ___ ___.
2. A hundred-cent piece is called a ___.

The sign $ is read *dollar* or *dollars*.
$6.72 means 6 dollars and 72 cents.

The dot in $6.72 is called the *cents point*. The number at the left of it tells the number of dollars. The *two figures* at the right of it tell the number of cents.

3. $5.62 means ___ dollars and ___ cents.
4. $7.05 means ___ dollars and 5 cents.
5. These are the prices of some toys. Read them.

a.	*b.*	*c.*	*d.*
$ 5.76	$5.11	$7.10	$16.60
$ 3.80	$5.10	$7.07	$16.06
$ 4.95	$5.09	$7.04	$21.20
$15.60	$5.08	$7.01	$12.02

6. A dollar is worth ___ half dollars or ___ dimes.
7. Which is larger: $1.12 or $1.21? $3.03 or $3.30?

Ask your teacher to let you take the addition tests on pages 19 and 20 again.

Subtracting Two-Figure Numbers

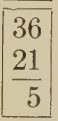
Our teacher said: "There are 36 children in this room. During the year, 21 of them have been absent or tardy. Who knows how many have not been absent or tardy?"

There are two ways to do this problem. Bertha did it one way, and James did it the other way. Ask your teacher which way you are to use.[1] Then read only about that way.

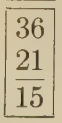
First Way

Bertha knew she ought to subtract; so she put down the example with the smaller number under the larger as is done in this box:——→

(1) She thought, "1 from 6 is 5," and she wrote the 5 right under the 1 and 6 as shown in this box:——→



(2) She thought, "2 from 3 is 1," and she wrote the 1 right under the 2 and 3 as is done in this box:——→



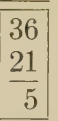
(3) How many pupils had not been absent or tardy?

Now skip over to page 38.

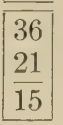
Second Way

James knew he ought to subtract; so he put down the example with the smaller number under the larger as is done in this box:——→

(1) He thought, "1 and what are 6? 1 and 5 are 6," and wrote the 5 right under the 1 and 6 like this:——→



(2) Then he thought, "2 and what are 3? 2 and 1 are 3," and wrote the 1 under the 2 and 3 as shown in this box:——→



(3) How many pupils had not been absent or tardy?

[1] NOTE TO THE TEACHER. These methods are about equally good. Use only the method that is approved in your school system. The authors prefer the first method.

Subtract without copying:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	34	95	49	57	41	88	56	69
	24	42	38	44	21	81	26	61
2.	104	155	125	109	115	107	122	114
	92	60	71	85	65	67	60	90
	12	95	54					

Copy, subtract, and check:

3.	136	113	118	104	118	96	159	159
	63	70	25	21	86	72	86	80
4.	543	897	983	675	549	689	967	870
	211	457	782	653	542	356	543	600

5. Ted's music teacher told him he must practice 45 minutes every day. Ted practiced 25 minutes before school; so he has only ___ more minutes to practice today.

6. Last Saturday my father wanted to take us to Millersville. That is 28 miles from home. When we were 13 miles from home, we had car trouble and had to send for help. How far from Millersville were we then?

7. Draw a line 28 inches long on the board. At one end mark "Home." At the other end mark "Millersville." Now mark with a cross (x) the place where the trouble occurred. Put numbers above the line to show the distance from the cross to Millersville, and from the cross to Home.

8. Dick earned 65¢. If he buys a book for 50¢, he will have ___ ¢ left to put in his bank.

Addition and Subtraction Dresses

Addition and subtraction examples can wear a lot of different dresses. An example looks different when it changes its dress, but don't let that fool you.

Addition Dresses	Subtraction Dresses
1. $8 + 5 = ?$	1. $17 - 8 = ?$
2. 8 and 5 are ?	2. 8 from 17 is ?
3. 5 more than 8 is ?	3. 17 is ? more than 8.
4. 8 added to 5 is ?	4. 17 less 8 is ?
5. The sum of 8 and 5 is ?	5. Subtract 8 from 17.
6. Add 8 and 5.	6. 8 and ? are 17.
7. 8 is 5 less than ?	7. 8 is ? less than 17.
8. The total of 5 and 8 is?	8. $17 - ? = 8$.
9. $\begin{array}{r} 8 \\ +\,5 \\ \hline \end{array}$	9. $\begin{array}{r} 17 \\ -\,8 \\ \hline \end{array}$

Tell what numbers belong in these blank spaces:

1. 4 is ___ less than 11.
2. 7 and ___ are 12.
3. The sum of 6 and 9 is ___.
4. 8 and 7 are ___.
5. 8 more than 9 is ___.
6. Subtract 3 from 12.
7. $16 - 7 =$ ___.
8. 14 is ___ more than 5.
9. Add 8 and 6.
10. $7 + 5 =$ ___.
11. 6 added to 7 is ___.
12. 7 is 9 less than ___.
13. 13 less 8 is ___.
14. 8 from 16 is ___.
15. $15 -$ ___ $= 9$.
16. 9 is ___ more than 5.
17. 9 added to 5 is ___.
18. 5 more than 7 is ___.
19. 9 is ___ less than 15.
20. 6 and ___ are 10.
21. 6 and 9 are ___.
22. 14 less 9 is ___.

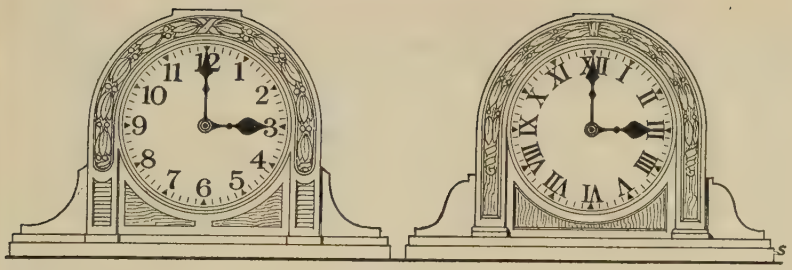
A Rhyme about Time*

If you can tell time,
You will like this rhyme.

At my mother said:
"Get up! Get up! You sleepy head."
At I sat down
To eat my egg, and toast so brown.
At , as mother wishes,
I helped my sister wash the dishes.
I left for school at
When I start then I'm never late.
At we heard the bell
And started our school day
happy and well.

*Note to the Teacher. See second paragraph in Section 7, page v, of Authors' Preface.

The Clock



1. These are the two ways that numbers are written on clock faces. The numbers on the second clock are called *Roman* numerals. What time is it by each clock?

1	2	3	4	5	6	7	8	9	10	11	12
I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII

2. What does the Roman numeral I mean? the Roman numeral V? X? VI? VII? XI? XII?

3. Ask your teacher to let you draw a clock with Roman numerals on it. Have you ever seen Roman numerals anywhere besides on the face of a clock? Where?

4. Can you find any Roman numerals on page 49? on page 50? What do you think IV means? It is I before V (one before 5) and means 4. Does IIII also mean 4?

5. Have you a toy clock in your room? Make it say: "1 o'clock," "2 o'clock," and so on up to "12 o'clock."

6. Make your clock say: "Half-past one," "Half-past two," and so on up to "Half-past twelve."

7. Make your clock say: "15 minutes after 1," "15 minutes after 2," and so on up to "15 minutes after 12." "Quarter after 12" means "15 minutes after 12."

8. Make your clock say: "Quarter of 1," "Quarter of 2," and so on up to "Quarter of 12."

The Clock

1. Tell what time it is every five minutes from 10 o'clock until 11 o'clock; from 3 o'clock until 4 o'clock. How does the clock look at each of these times?

2. My ticket says the show I am going to see this afternoon starts at 2:10. (2:10 is read "Two ten.") That is the same as ___ minutes after two. How will the clock look at that time?

3. Make your clock say: 5:00, 5:10, 5:20, 5:30, 5:40, 5:50, 6:00.

4. Make your clock say: 5:17, 5:18, 5:19, 5:20, 4:01, 4:02, 4:03, 4:04, 4:05.

5. If your mother writes a note, asking the teacher to let you go home from school at 1:30, how will the clock look when it is time for you to go?

6. How does the clock look at 1:35? 1:40? 1:45? 1:50? 1:55? 2:00? 2:05? 2:10?

7. Read in two ways: 9:10, 8:25, 7:28, 4:04, 5:07.

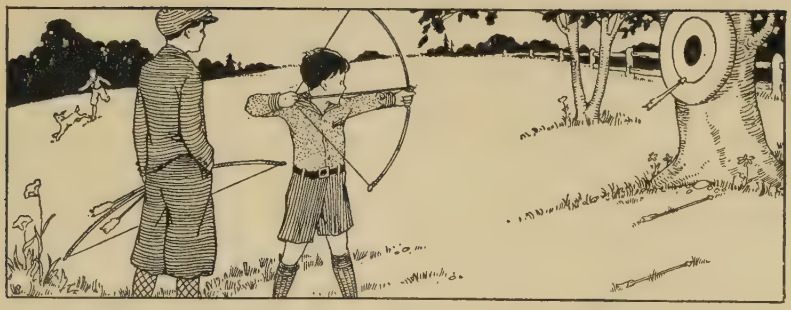
8. 8:35 is read "Eight ___." It means "___ minutes of nine." Tell how the blanks above should be filled in for 8:40, 8:45, 8:50, 8:55.

Read in two ways:

9. 9:35, 8:45, 3:40, 4:55, 5:35, 9:50, 7:38, 7:14, 8:19, 7:31, 4:45, 4:46, 3:55, 3:56, 2:59, 1:19, 2:52.

10. Make the clock say: (*a*) half-past 12; (*b*) twenty minutes of 10; (*c*) twelve minutes of 5; (*d*) quarter of 9; (*e*) ten minutes after 11; (*f*) eleven minutes after 3; (*g*) quarter after 6; (*h*) twelve minutes after 4.

Hitting the Target *



1. My little brother and I each received a set of bow and arrows last Christmas. I shot at the target 34 times and hit it 22 times; so I must have missed it ___ times.

2. I told my little brother he could take 10 more shots than I took; so he took ___ shots.

3. He hit the target only 12 times; so he must have missed it ___ times.

4. My cousin had 28 shots and hit it 17 times. How many times did he miss?

5. At first I stood 9 feet from the target, but now I stand 6 feet farther away. How far do I stand from the target now?

6. My father can hit the target if he stands 25 feet from it. How many more feet must I move back to stand where he stands?

7. My brother stood 12 feet from the target when he started, but he missed so often that I told him to move 3 feet closer; so now he stands only ___ feet from the target.

8. My brother and I each had 15 arrows at first. But every little while he breaks one. He has only 11 now; so he must have broken ___.

Practice in Subtraction

Subtract and check: (Use folded paper.)

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	12	16	17	12	14	13	10	11
	8	7	9	4	8	9	8	4
2.	10	14	11	13	10	18	13	10
	1	5	5	4	3	9	5	2
3.	11	11	17	15	12	16	10	11
	3	9	8	6	5	9	7	2
4.	13	12	5	14	9	14	7	16
	7	3	0	6	0	9	0	8

	a	*b*	*c*	*d*	*e*	*f*	*g*
5.	188	137	144	159	149	148	133
	90	51	52	67	61	98	41
6.	114	110	136	149	144	176	131
	31	50	51	99	80	85	91
7.	179	158	165	118	177	111	137
	80	96	84	87	92	60	83

8. 15 is ___ more than 9.

9. 6 is ___ less than 14.

10. 9 and ___ are 17.

11. 17 less 8 is ___.

12. 5 from 12 is ___.

13. 14 − 9 = ___.

14. 6 and ___ more are 11.

15. 9 from 12 is ___.

16. 5 and ___ more are 8.

17. 16 less 8 is ___.

18. The difference between 13 and 7 is ___.

Test on Subtraction Facts

Write the answers to these subtraction examples on folded paper. If you have an error in any row, do that row until you get every example correct.

1.	6 1	2 1	5 2	6 3	3 1	7 1	4 3
2.	9 8	4 4	9 1	9 9	5 3	5 4	1 1
3.	3 3	3 2	7 7	5 1	0 0	3 0	5 0
4.	8 8	9 3	7 3	6 0	9 0	7 2	12 6
5.	10 1	6 2	10 2	7 6	9 5	8 7	4 1
6.	11 7	13 6	15 8	8 5	11 5	11 8	9 2
7.	12 4	10 8	7 4	12 8	1 0	8 3	7 0

Test on Subtraction Facts

Write the answers to these subtraction examples on folded paper. If you have an error in any row, do that row until you get all the examples correct.

1.	8 0	2 0	9 7	9 4	4 0	14 9	13 4
2.	15 9	17 8	15 7	13 9	13 5	16 7	13 7
3.	12 3	15 6	14 8	12 5	12 7	11 4	11 6
4.	12 9	10 5	10 6	8 4	6 5	7 5	6 4
5.	16 9	14 5	17 9	4 2	6 6	10 9	14 7
6.	13 8	11 3	14 6	8 2	10 4	9 6	5 5
7.	16 8	18 9	11 9	8 6	11 2	10 7	10 3

What You Have Learned

Tell the numbers that belong in these blank spaces:

1. 16, 26, 36, ___, ___, ___, ___, ___, 96.

2. 67, 167, 267, ___, ___, ___, ___, ___, 867.

3. 596, 597, 598, ___, ___, ___, ___, ___, 604.

4. Five hundred eighty-two means ___ hundreds, ___ tens, and ___ ones.

5. Seven hundred sixty means ___ hundreds, ___ tens, and ___ ones.

6. Is four hundred five more than five hundred four?

7. Teddy cut this list out of a toy price list. Can you read it?

Sailboat	$5.50	Doll carriage . . .	$9.98
Fire engine . . .	$8.75	Sewing box	$1.25
Coaster	$6.05	"Bye-lo" baby . . .	$4.50
Paint box . . .	$1.10	Ball	$ .75

8. Tom's mother sent him to the store with 45¢. When he reached the store, he had 30¢. He had lost the other ___ cents.

9. "Cut-out" picture puzzles cost 48¢. Betty has 78¢. If she buys a puzzle, how much will she have left?

10. A quart of ice cream costs 60¢, and a box of wafers costs 24¢. How much will it cost to serve both at a party?

11. There are ___ inches in a foot; ___ pints in a quart; ___ feet in a yard.

12. Can you add these in a minute?

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
								4	0
8	9	7	6	9	7	58	32	0	1
7	5	9	8	7	6	31	65	3	5
								2	4

Progress Test No. 2

Write just the answers to these examples on your test paper. Number each answer. (Record your score on the Progress Test Record at the back of the book.)

Subtract:

1.	2.	3.	4.	5.	6.	7.
14	11	14	13	10	17	16
6	7	9	8	6	9	7

8.	9.	10.	11.	12.	13.	14.
15	14	74	129	71	78	38
6	8	13	34	30	4	5

15. 13 is ? more than 4.

16. 18 less 9 is?

17. Subtract 5 from 14.

18. 8 and ? are 12.

19. 11 − ? = 8.

20. 34 − 11 = ?

21. A quarter less a dime is ___ ¢.

22. A yard less a foot leaves ___ ft.

23. A gallon less 2 qt. leaves ___ qt.

24. A yard less a foot leaves ___ in.

25. If you have 25¢ and spend 18¢, you have ___ ¢ left.

26. A half dollar less a dime equals ___ ¢.

27. Dick is having a Halloween party. He has made 12 pumpkin lanterns. He needs 22. How many more must he make?

Standards: X, 25. Y, 22. Z, 18.

Finding Out What You Know and What You Don't Know

TEST I. ADDITION

Find these sums:

1.	2.	3.	4.	5.	6.	7.
	2		6			$5 + 9 = ?$
	3	4	3			
0	0	4	2	46	40¢	
6	2	5	3	32	35¢	

TEST II. SUBTRACTION

Subtract: **1.** 24 from 38. **2.** 56 from 118. **3.** 0 from 7.

4. 17 less 8 is ?

5. 15 is ? more than 8.

6. 8 is ? less than 14.

7. 9 and ? are 13.

8. $16 - 8 = ?$

9. 6 from 13 is ?

TEST III. NUMBERS

1. Which is the larger number: 57 or 75? 325 or 235? 705 or 750?

2. Write the next four numbers that come after 68; after 197; after 639.

3. Tell the missing numbers: 114, 214, 314, ___, ___, ___, 714.

4. 581 means ___ hundreds, ___ tens, and ___ ones.

5. Draw a pie divided in halves; another divided in thirds; another in fourths.

6. Write, using dollar sign and cents point: (*a*) five dollars and four cents; (*b*) eight dollars and forty cents.

Fill in the blank spaces:

1. 1 ft. = ___ in.
2. 1 qt. = ___ pt.
3. 1 yd. = ___ ft.
4. A nickel = ___ ¢.
5. A quarter = ___ ¢.
6. 1 yd. = ___ in.
7. 1 gal. = ___ qt.
8. A dime = ___ ¢.
9. A half dollar = ___ ¢.
10. A dollar = ___ ¢.

The Practice You Need

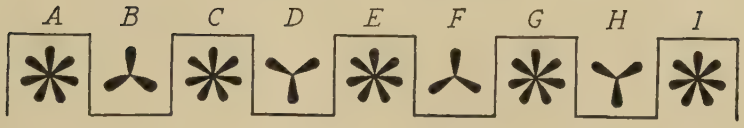
If you made any mistakes in Tests I to IV, you need practice on the kinds of examples you missed. This chart shows you where to get that practice. Do you see that it tells you that if you missed Example 1 in Test I you should practice pages 7 and 8? (p. means page; pp. means pages. Ex. means example; Exs. means examples.) If you missed Example 2 in Test I, where can you find the examples you should practice? If you missed any of the examples from 4 to 9 in Test II, where are the examples which you need to practice?

TEST I	TEST II	TEST III	TEST IV
1. pp. 7 and 8	1. p. 38	1. p. 3	1. p. 13
2. p. 15	2. p. 38	2. p. 31	2. p. 13
3. p. 16	3. p. 33, Exs. 1 and 2	3. p. 31	3. p. 13
4. p. 16	4–9. p. 39	4. p. 31	4. p. 12
5. p. 18		5. p. 14	5. p. 12
6. p. 12, Ex. 13		6. p. 36	6. p. 13
7. p. 5, Exs. 1–21			7. p. 13
			8. p. 12
			9. p. 36
			10. p. 36

CHAPTER III

ADDITION

Adding by Endings



Anna made this border for a book cover. She cut out red paper petals and pasted them on white paper. How many petals has the flower at A? the flower at B? at C? D? E? F? G? H? I? This is the way Anna found out how many petals she had to cut out. She wrote down the numbers she needed in a long column like this, and adding, thought: 7 and 3 are ___, and 7 are ___, and 3 are ___, and 7 are ___, and 3 are ___, and 7 are ___, and 3 are ___, and 7 are ___.

7
3
7
3
7
3
7
3
7
47

These are the additions she had to make:

3	7	3	7	3	7	3	7
7	10	17	20	27	30	37	40
10	17	20	27	30	37	40	47

1. When 7 is added to a number ending in 0, the sum ends in ___. Which of the examples above show this?

2. When 3 is added to a number ending in 7, the sum ends in ___, and the figure in the tens place becomes one greater than it was. Which of the examples above show this?

Adding by Endings

1. Add:

2	2	2	2	2	2
3	13	23	33	43	53

2. When 2 is added to a number ending in 3, the sum ends in ___.

3. Add:

4	4	4	4	4	4
3	13	23	43	63	93

4. When 4 is added to a number ending in 3, the sum ends in ___.

5. Add:

6	6	6	6	6	6
5	15	25	55	75	85

6. When 6 is added to a number ending in 5, the sum ends in ___, and the figure in the tens place becomes one greater than it was.

7. Add:

3	2	3	5	5	4
27	47	36	54	93	84

8. Add 3 to each of the following numbers:

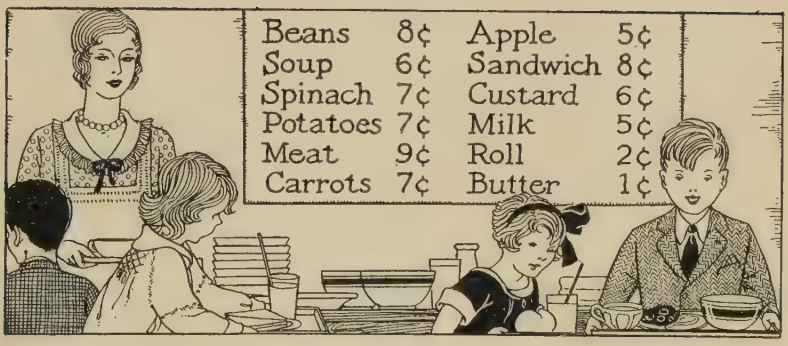
10 32 58 76 87 99 43 65 24

9. Add 4 to each of the numbers above. Add 5; add 6; 7; 8; 9.

Add:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
10.	5	8	6	1	8	9	7	3	8
	2	7	2	7	5	9	8	4	9
	3	1	9	7	5	6	2	8	4
11.	4	7	9	9	7	5	5	4	6
	5	8	5	8	5	7	8	7	9
	8	7	6	4	9	6	5	4	7

School Lunches



How much are these children paying for their lunches?

1. Billy is buying a roll, potatoes, and meat.

2. Teddy is buying an apple, milk, and beans.

3. Alice wants a glass of milk, a sandwich, and soup.

4. Grace is taking milk, a sandwich, and spinach. She has twenty cents. Will she get any change?

5. What must George pay for a roll, carrots, and meat?

6. Philip wants potatoes, soup, and beans. He has two dimes. Can he buy the things he wants?

7. Jack has a quarter. How much change will he get if he buys custard, soup, and beans?

Add these:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
8.	3	9	1	3	4	3	9	3	4
	8	3	3	5	3	8	8	9	9
	8	4	7	6	8	7	2	3	1
9.	7	9	2	7	1	6	6	2	9
	8	8	5	9	6	8	7	4	9
	3	2	9	3	9	5	4	8	2
	6	8	6	4	5	4	5	6	7

Counting

1. Count from 3 to 36 by 3's.

2. Count from 20 to 100 by 10's.

3. Count by 3's to 32, beginning 2, 5, 8, 11, · · ·

4. Count by 5's to 53, beginning 3, 8, 13, 18, · · ·

5. Count by 4's to 41, beginning 1, 5, 9, 13, · · ·

6. Count by 10's to 98, beginning 8, 18, 28, · · ·

7. What numbers should be in these blanks:

a. (Counting by 4's) 3, 7, 11, 15, ___, ___, ___, ___, 35
b. (Counting by ?'s) 2, 7, 12, 17, ___, ___, ___, ___, 42
c. (Counting by ?'s) 1, 4, 7, 10, ___, ___, ___, ___, 25
d. (Counting by ?'s) 3, 13, 23, 33, ___, ___, ___, ___, 83
e. (Counting by ?'s) 4, 9, 14, 19, ___, ___, ___, ___, 44
f. (Counting by ?'s) 16, 20, 24, 28, ___, ___, ___, ___, 48

8. In saying the numbers 13, 16, 19, 22, you are counting by ___. Tell the next four numbers.

The Party

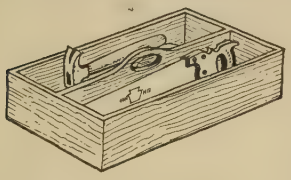
9. The 32 children in third grade and the 35 children in second grade are having a party after school. Each child is going to be given a balloon. How many balloons are needed?

10. The second-grade teacher bought 20 red balloons, 21 green ones, and 22 yellow ones. The third-grade teacher said, "Why, you have only ___ balloons. That isn't enough."

11. They sent Tom down to the store to buy more. He bought 5 purple ones. How many balloons have they now? Have they enough? Have they more than enough?

Buying Tools for the Tool Box

Harold's father gave him a tool box on his birthday. It has only a hammer and saw in it. Harold has 72¢, which he is going to use to buy some more tools. He wants a chisel which costs 54¢ and a screwdriver which costs 29¢. Has he enough money to buy both of these? This is the way to add to find out what both will cost.



54
29

(1) Write the example as shown in this box :——→ Think, "9¢ and 4¢ are 13¢. 13¢ is 1 dime and 3 cents."

54
29
3

(2) Write the 3 under the 9 and 4 as shown in this box :——————————→ Then carry the dime to the dimes column.

54
29
83

(3) Think, "1 and 2 are 3, and 5 are 8." Write the 8 under the 2 and 5 as shown in this box :——→

(4) How much does Harold need to buy the chisel and screwdriver? Has he enough money to buy them?

1. Add 26 and 24.

26
24
0

(1) Think, "4 and 6 are 10." Write the 0 under the 4 and 6, and carry the 1 to the tens column.——→

26
24
50

(2) Think, "1 and 2 are 3, and 2 are 5." Write the 5. The answer is ___.

2. See if you can add 24 and 26 without looking at the explanation.

3. Add 37 and 46.

(1) Think, "6 and 7 are ___." Write the 3 and carry the ___.

(2) Think, "1 and 4 are ___, and 3 are ___." Write the 8. The answer is ___.

More Carrying

1. Here are some additions that are done correctly. Cover the answers and do each example. After you have done them, look to see whether your answers are correct.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
27	35	47	83	66	99	77	87
68	49	87	78	59	84	55	83
95	84	134	161	125	183	132	170

Add these:

2.	79	53	63	18	84	39	85	96
	57	58	57	97	57	56	87	58
3.	92	76	87	67	96	59	98	65
	88	35	37	45	37	85	72	88
4.	82	49	43	38	84	76	88	77
	39	81	89	95	98	79	74	29

5. Harold thought of buying the 54-cent chisel and a carpenter's rule that costs 43¢. How much would he need?

6. He would like to have a 25-cent box of nails. Is his 72¢ enough money to buy the nails and the chisel?

7. Has he enough money to buy the carpenter's rule and the 29-cent screwdriver?

8. Can he buy a 26-cent file and the chisel?

9. Can he buy a 10-cent box of tacks, the file, and nails?

10. Practice on these addition examples:

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
4	16	66	8	79	48	6	7
37	5	22	5	20	9	80	88
22	33	33	94	16	60	79	54

Baking Cookies *

Tell whether Mary should add or subtract to find the answer to each of these problems.

1. Mary wants to bake some cookies. She has counted the eggs she has and found she does not have as many as the recipe calls for. To find how many more she needs, she should ___.

2. Mary has two pans in which to bake her cookies. She knows how many cookies can be baked in each pan. To find how many cookies can be baked in both pans, she should ___.

3. Mary knows how many cookies she put in the oven and how many she burned. To find how many were not burned, she should ___.

4. Mary knows how many ginger snaps and how many sugar cookies she baked. To find how many cookies she baked all together, she should ___.

5. She knows how many cookies she has baked and how many she will need for tea. To find how many she can spare to take to her aunt, she should ___.

6. Mary knows how many cookies there were in the cooky jar before Jimmy went into the kitchen and how many there were after he came out. To find how many he took, she should ___.

Do You Know?*

1. Does a dozen oranges cost about 5¢, 8¢, 40¢, or $2.00?

2. Is the height of a third-grade girl about $4\frac{1}{2}$ inches, $4\frac{1}{2}$ feet, or $4\frac{1}{2}$ yards?

3. Would a boy's woolen sweater cost about $.03, $.30, $3.00, or $30.00?

4. Is breakfast time about 3 : 30 A.M., 1 : 30 P.M., 7 : 30 A.M., or 6 : 30 P.M.?

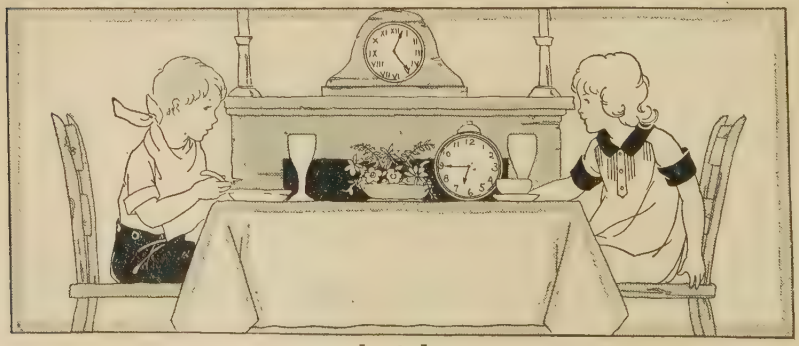
5. Our teacher is taking 8 of us boys to the circus. The tickets cost $1.10 each. Will the tickets for the 9 of us cost $5.09, $9.90, $19.00, or $29.00?

6. If you have some money and spend part of it, must what you have left be more than, less than, or the same as what you had at first?

7. Is the age of a schoolboy's grandfather about 12 years, 25 years, 55 years, or 155 years?

8. On an all-day hike would some Boy Scouts be likely to walk $\frac{1}{2}$ mile, 12 miles, 75 miles, or 100 miles?

9. Tommy and Ann are eating their lunch. Which clock do you think is right?



Checking Addition

When you add, would you like to know whether your answers are correct? There is an easy way to find out. Copy and add the example at the right.

45
36
23

Now, if your answer is correct, the sum of each column when added downward will be the same as when added upward.

(1) For example, adding the first column downward you think, "5 and 6 are ___, and 3 are ___." This shows that the 4 in your answer is right.

(2) Carrying the 1, think, "1 and 4 are ___, and 3 are ___, and 2 are ___." This shows that the 10 is right.

When you get the same answer adding the columns both ways, we say your addition is *checked*.

1. Copy and check these examples by adding both ways, as shown above. If you do not get the same answer by adding both ways, what does that show you? What will you do then?

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
				23	14	35	23
56	24	89	67	45	55	43	45
43	38	68	69	59	58	229	67

2. Do not copy these. Write your answers on folded paper and then check them.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
3	5	7	6	9	8	3	3	5	8
6	9	7	9	2	3	2	7	6	3
4	8	3	5	2	7	6	4	7	9
5	7	4	4	3	5	9	9	8	4

Number Practice

Give the missing numbers:

	a	*b*	*c*
1.	9 + ? = 17	? + 4 = 13	8 + ? = 14
2.	5 + ? = 13	8 + ? = 17	? + 5 = 14
3.	7 + ? = 15	6 + ? = 13	6 + ? = 15
4.	9 + ? = 16	9 + ? = 13	? + 7 = 12
5.	? + 8 = 14	? + 9 = 12	7 + ? = 16

6. Add 9 to each of the following numbers:

27 16 35 24 18 29 33 21 32

7. Add 8 to each of the numbers in Ex. 6; add 7; 6; 5.

Find these sums and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
8.	98	86	75	66	64	76	89	64
	69	67	69	98	83	57	55	55
9.	65	50	65	23	58	98	94	72
	89	77	46	96	48	43	98	45
10.	54	38	67	34	84	70	97	80
	39	54	40	86	87	78	78	99
11.	7	5	6	5	8	5	4	8
	8	9	7	9	6	9	6	9
	9	6	8	3	4	7	8	3
12.	3	9	7	4	6	3	2	6
	9	2	3	6	9	6	4	8
	4	7	4	3	5	7	9	4
	5	6	8	9	4	8	5	7

The Grocer's Price Lists

Mr. Hill, the grocer, is having a sale tomorrow. Yesterday after school Frank handed out 256 price lists for Mr. Hill, and today he handed out 246. Frank wondered how many price lists he handed out in both days. He knew that he should add to find out. This is the way he added.

(1) He thought, "6 and 6 are 12," and he wrote the 2 under the ones column as is done in this box :⟶

256
246
2

(2) Then he carried the 1 to the tens column and thought, "1 and 4 are 5, and 5 are 10." He wrote the 0 under the tens column as is done in this box :⟶

256
246
02

(3) Then he carried the 1 to the hundreds column and thought, "1 and 2 are 3, and 2 are 5." He wrote the 5 in the hundreds column as is done in this box :⟶

256
246
502

(4) He checked his addition by adding downward. How many price lists did he hand out in all?

1. How many price lists did these boys hand out?

Tom	*Ben*	*Harry*	*Dick*	*Mack*
135	298	226	236	176
248	141	227	164	298

2. Who handed out the largest number of price lists? the smallest number?

Copy, add, and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
3.	654	543	764	176	386	398	543	653
	299	286	193	747	455	276	384	259
4.	296	189	698	278	487	266	334	759
	457	576	179	679	286	379	266	149

The Grocer's Sale *

1. Find how much it will cost today to buy:

(*a*) a box of cocoa, a can of peas, and a can of cherries.

(*b*) a glass of peanut butter, a box of cocoa, and a can of cherries.

(*c*) two glasses of peanut butter and a can of peas.

(*d*) two cans of peaches and a box of cocoa.

(*e*) a can of peas, a box of cocoa, and a can of peaches.

2. My mother gave me a quarter, a dime, and 2 nickels to get a can of cherries. Did she give me enough money?

3. Tell how much can be saved today on a can of peaches; on a can of peas; on a glass of peanut butter; on a box of cocoa; on a can of cherries.

4. If you have a quarter, you can buy either ___ or ___.

5. If you have a half dollar, you can buy ___ and ___.

6. If you have a half dollar, can you buy 2 cans of peas?

7. What would two cans of peaches cost? three cans? four cans? five cans? six cans?

Ask your teacher to let you take the addition tests on pp. 19 and 20 and the subtraction tests on pp. 45 and 46 again.

More Practice with Carrying

This is the way Jimmy added 187, 175, and 369 in a test.

(1) He thought, "9 and 5 are 14, and 7 are 21." He wrote the 1 and carried the 2 to the tens column.

(2) He thought, "2 and 6 are ___, and 7 are ___, and 8 are 23." He wrote the 3 and carried the 2 to the hundreds column.

(3) He thought, "2 and 3 are ___, and 1 are ___, and 1 are 7." He wrote the 7 and then checked his addition.

(4) His answer is 731. Is it right?

187
175
369
731

1. These additions are correct. Cover the answers and do each example. Then compare your answers with these.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
24	18	44	167	73	29	88	45
37	45	55	32	184	507	99	32
56	26	77	84	81	30	563	86
78	49	66	279	579	209	287	597
195	138	242	562	917	775	1037	760

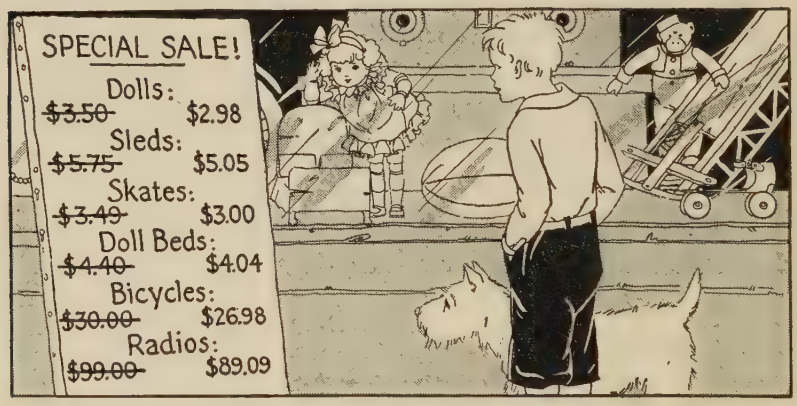
Copy, add, and check:

2.	70	164	34	37	204	43	102	205
	109	32	126	78	508	304	208	308
	37	107	78	63	38	206	409	204
	775	206	189	159	119	107	503	106
3.	88	97	68	97	89	76	98	87
	97	86	69	78	49	58	70	79
	89	79	76	89	93	94	85	87

4. Can you subtract and check these in three minutes?

99	88	77	66	55	95	86	79
28	37	46	52	41	22	33	44

1. In this picture the old prices of the toys are crossed off. The sale prices are written beside them. Can you read the old and the new prices? Which toy costs the most? the least?



2. Write in figures, using the dollar sign and cents point:

a. Twelve dollars and fifty-two cents.
b. Thirty-three dollars and three cents.
c. Forty dollars and ten cents.
d. Seventy-one dollars and seventy-one cents.

3. How much money has each of these children?

a. Anna has a quarter, a dime, and a nickel.
b. Dorothy has a half dollar, a quarter, and a dime.
c. Doris has 2 quarters, 2 nickels, and 3 pennies.
d. Dick has 2 half dollars, 5 nickels, and 4 cents.
e. Henry has a half dollar, 2 quarters, and 3 dimes.
f. Thomas has a quarter, 5 dimes, and 4 nickels.
g. Jane has 3 quarters, 2 nickels, and 8 pennies.
h. Jo has a dollar, a quarter, 3 dimes, and 12 pennies.

Adding Money

Billy works in a drug store after school. When a man bought a bottle of medicine for $1.25 and a box of soap for $1.49, this is the way Billy added to find out how much to charge him: ⟶

$1.25
1.49
$2.74

(1) When Billy wrote down his example, he put the cents point of the $1.49 under the cents point of the $1.25.

(2) He wrote the dollar sign in two places only; that is, before the upper number to be added and before the ___.

(3) After he had added and checked his work, he put the cents point in the answer right under the cents points in the example.

1. Here is some of Billy's work that he has not checked yet. What mistakes will he find when he checks his work?

a	*b*	*c*	*d*	*e*	*f*	*g*
$1.25	$1.10	$2.48	$ .75	$1.68	$2.83	$ .84
1.30	.50	1.50	.50	.50	1.74	.19
$2.55	$1.60	$3.98	$1.25	$3.18	$3.37	$1.03

Copy, add, and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*
2.	$4.00	$4.39	$ .67	$1.04	$1.25	$ .98	$ .05
	3.00	2.73	.52	.76	1.25	.43	.07
	2.00	8.27	.33	.53	1.25	.20	.09
3.	$ .76	$1.76	$1.73	$4.50	$5.60	$ .04	$1.00
	.54	.24	1.24	5.04	3.80	.74	2.00
	.32	2.46	.59	6.30	4.30	.69	2.00
	.98	.93	.26	2.70	.20	.32	4.99
4.	$ .79	$1.72	$2.56	$5.63	$5.98	$5.09	$4.76
	.84	3.48	.39	4.94	4.67	8.76	2.00
	.37	.93	2.84	2.00	3.38	5.39	.37

Our Daily Program	
A.M.	P.M.
9:00 to 9:15 Opening Ex.	1:15 to 1:30 Music
9:15 to 9:35 Spelling	1:30 to 1:50 Writing
9:35 to 10:00 Reading	1:50 to 2:00 Phys. Ex.
10:00 to 10:20 Social Studies	2:00 to 2:45 Art
10:20 to 10:35 Recess	
10:35 to 11:05 Arithmetic	
11:05 to 11:30 Story Telling	

1. We have Opening Exercises every morning from nine o'clock until fifteen minutes past nine. How long do we spend on Opening Exercises?

2. At what time does our Spelling lesson begin? When does it end? (9:35 is "Nine thirty-five." It means 35 minutes past nine.) How long do we spend on Spelling?

3. What do we do in the morning? in the afternoon? What does A.M. mean? What does P.M. mean?

4. When do we start our Reading lesson?

5. How long do we spend on Reading? Social Studies? Story Telling? Music? Writing? Physical Exercises?

6. We have Arithmetic from ___ to ___. How long is it from 10:35 to 11:00? How long is it from 11:00 to 11:05? How long do we spend on Arithmetic?

7. How many minutes have we for recess?

8. It takes me 12 minutes to walk to school. If I start for school at 8:45, shall I get there on time?

9. What time do I get home from school in the morning? in the afternoon?

Addition Practice

Add and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	29	56	37	84	80	40	29
	36	37	84	90	59	35	83
	54	84	56	65	64	84	54
	78	56	20	32	59	76	69
2.	$ 07	$2.98	$9.76	$8.28	$8.20	$2.54	$3.07
	6.83	8.63	8.32	3.75	9.53	2.87	2.00
	1.19	5.49	4.56	5.84	4.67	4.69	3.89
3.	17	63	5	34	63	29	4
	8	89	84	76	5	8	85
	32	7	74	89	85	7	6
	56	52	58	7	8	28	39
4.	286	25	490	75	95	568	30
	54	646	163	548	85	49	85
	307	295	35	63	568	72	654
5.	$.75	$.46	$.27	$.25	$.46	$.95	$.63
	.63	.28	.63	.04	.28	.86	.95
	.82	.70	.49	.08	.70	.04	.86
	.75	.69	.86	.75	.93	.07	.75
6.	$5.67	$5.67	$4.67	$ .85	$5.00	$6.45	$ .43
	2.39	.25	2.98	5.46	2.98	.75	5.28
	8.46	4.32	.54	2.98	.07	.89	.76
7.	$2.75	$4.73	$3.63	$ .73	$2.76	$3.26	$ .73
	3.89	2.83	.48	5.42	3.79	.75	.98
	.73	.29	.99	.99	.84	.49	.75
	.29	.75	2.00	.87	.39	.85	2.76

A Written Test

1. Write the numbers to 39, beginning 3, 9, 15, · · ·

2. Write the numbers to 44, beginning 2, 9, 16, · · ·

3. Add and check: (Do not copy the examples.)

a.	*b.*	*c.*	*d.*	*e.*
3	9	8	3	8
7	8	5	7	9
8	6	2	6	8
9	4	3	4	9

4. Write the Roman numbers for 4; 6; 8; 9; 11.

5. What time is it when the large hand of the clock points to 12 and the small hand points to 5?

6. Copy, add, and check:

a.	*b.*	*c.*	*d.*	*e.*
139	129	43	$ .40	$3.00
476	76	25	2.20	2.00
328	48	178	4.95	1.98

7. Subtract:

a.	*b.*	*c.*	*d.*	*e.*
17	16	14	13	15
9	7	5	4	8

8. How much would it cost to buy a doll for $3.25 and a sewing basket for $.50?

9. The third-grade pupils have read to page 49 in their readers. Peggy was out of school and has read only 33 pages. How many pages must she read to catch up with the rest of the class?

10. Rose has 89¢. She wonders how much she will have left if she spends 15¢ to go to the movies. Do you know?

11. Ted has a quarter. He wants to buy a 49-cent book. How much more does he need?

Progress Test No. 3

Write just the answers to these examples on your test paper. Number each answer. (Record your score.)

Add and check:

1. 8 9	**2.** 54 67	**3.** 50 76	**4.** 26 33	**5.** 176 358

6. 8 9 2 7	**7.** 82 34 56 78	**8.** 255 395 107 206	**9.** 5 406 38 119	**10.** $5.60 3.80 7.05 4.89

11. Forty-three and six are ?

12. Fifty-seven and nine are ?

13. If a school party begins at 2 : 15 P.M. and is to last a half hour, at what time does it end?

14. Tom wants a pair of shoes that cost $4.75, a cap that costs $.98, a sweater that costs $5.50, and a pair of woolen socks that cost $1.19. How much money does he need to get them all?

15. Charles has three quarters. If he buys a 30-cent sailboat, how much money will he have left?

Standards: X, 13. Y, 11. Z, 9.

CHAPTER IV

SUBTRACTION

Buying Skates

Carolyn and her brothers, Teddy and Tom, are each saving money to buy skates which cost $2.75 a pair. Carolyn has $1.60 saved. She wonders how much more she needs for her pair. This is the way to find out:

(1) Write the cost of the skates, putting the dollar sign before it.

$2.75
1.60
$1.15

(2) Next write the money she has saved, making sure to place the cents point right under the other cents point. Do not write the dollar sign.

(3) Subtract in each column.

(4) Put the cents point in the answer under the cents points in the example and write the dollar sign.

(5) Check in the usual way by adding upward to see if $1.15 and $1.60 equal $2.75.

Carolyn needs ___ more to buy her skates.

1. Teddy has saved $2.20. How much does he need?

2. Tom has saved only $.70. How much does he need?

Subtract:

	a	*b*	*c*	*d*	*e*	*f*	*g*
3.	$5.98	$6.73	$9.76	$8.74	$6.55	$ .75	$ .98
	2.40	2.42	.05	3.00	4.25	.45	.73
4.	$8.09	$ .54	$3.08	$7.50	$8.73	$5.47	$6.76
	4.09	.24	2.00	4.20	2.63	.43	6.70

A New Kind of Subtraction

Bob had 74¢. He wanted to know how much he would have left if he bought a 39-cent kite.

There are two ways to do this problem. Bob did it the First Way. His sister Alma did it the Second Way. Ask your teacher which way you are to use.

First Way

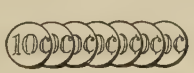
(For the Second Way see page 74.)

(1) Bob knew that he ought to subtract; so he wrote the smaller number under the larger like this:——→

74
39

He thought, "9¢ from 4¢," but he knew he couldn't take 9¢ from 4¢; so he asked his father what to do.

(2) His father drew this picture.

74¢ equals  and

(7 dimes) (4 cents)

39¢ equals and

(3 dimes) (9 cents)

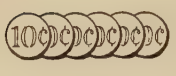
(3) "Now," his father said, "you can't take 9¢ from 4¢, but where could you get some more cents to put with the 4¢?"

(4) Bob thought a minute; then he said, "Why, I could take one of the dimes and get it changed into cents. Then I'd have 6 dimes and 14 cents."

(5) His father said, "Good, Bob. Draw a picture to show me how that would look."

(6) Bob drew the pictures shown at the top of the next page.

A New Kind of Subtraction

74¢ equals  and

(6 dimes) (14 cents)

39¢ equals and

(3 dimes) (9 cents)

(7) Then, subtracting, he thought, "9¢ from 14¢ is 5¢. 3 dimes from 6 dimes is 3 dimes. 3 dimes and 5 cents is ___¢." So Bob knew he would have 35¢ left after he bought the kite.

(8) He went back to the way he had written the example first:

74
39

(9) He thought, "9 from 14 is ___." He wrote the 5 like this:

74
39
5

(10) He thought, "3 from 6 is 3." He wrote the 3 like this:

74
39
35

This showed him that he would have 35¢ left. He checked by adding 35 and 39. Is the sum of these numbers 74?

Copy these examples and work each one as you read the explanation:

1.

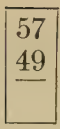
76
48

In this example 8 from 16 is ___. 4 from 6 is ___. The answer is 28. Checking, ___ and 8 are 16; 1 and ___ are ___, and 4 are 7.

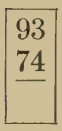
2.

84
28

In this example 8 from ___ is ___. 2 from ___ is ___. The answer is 56. Checking, ___ and 8 are 14; 1 and ___ are ___, and 2 are 8.

3. 

In this example 9 from ___ is ___. 4 from ___ is ___. The answer is 8. Checking, ___ and 9 are ___; 1 and ___ are ___.

4. 

In this example 4 from ___ is ___. 7 from ___ is ___. The answer is 19. Checking, ___ and 4 are ___; 1 and ___ are ___, and 7 are 9.

5. Now try Examples 1 to 4 without help.

The subtraction examples that follow are worked correctly. Cover the answers and work and check the examples. Then look to see if your answers are correct.

	a	*b*	*c*	*d*	*e*	*f*	*g*
6.	84	127	137	253	747	460	184
	59	18	19	29	38	29	78
	25	109	118	224	709	431	106
7.	73	82	95	64	670	87	38
	64	75	86	57	58	69	19
	9	7	9	7	612	18	19

Copy, subtract, and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*
8.	47	66	75	67	50	75	80
	28	48	39	49	39	39	26
9.	57	467	276	64	78	585	425
	48	28	49	58	69	77	19
10.	98	254	167	75	63	482	438
	39	39	49	28	39	69	28

Skip now to page 75.

Second Way

Alma knew that she ought to subtract.

(1) She thought, "9 is more than 4. I must think of the 4 as 14." Then she thought, "9 and 5 are 14." She wrote the 5 under the 9 and 4 like this: →

74
39
5

(2) She carried the 1 from the 14 and added it to the 3. That made it a 4.

(3) She thought, "4 and 3 are 7." She wrote the 3 under the 3 and 7, like this: →

74
39
35

Alma told Bob he would have 35¢ left after he had bought the kite. To make sure 35 was right, she checked the subtraction by adding upward to see if the sum of 35 and 39 is 74. Is it?

Copy these examples and work each one as you read the explanation:

1.

76
48

In this example 8 and ___ are 16. 5 and ___ are 7. The answer is 28. Checking, ___ and 8 are 16. 1 and ___ are ___, and 4 are 7.

2.

84
28

In this example 8 and ___ are 14. ___ and ___ are 8. The answer is 56. Checking, ___ and 8 are ___. 1 and ___ are ___, and 2 are 8.

3.

57
49

In this example 9 and ___ are ___. ___ and ___ are 5. The answer is 8. Checking, ___ and 9 are ___. ___ and ___ are 5.

4.

93
74

In this example 4 and ___ are ___. ___ and ___ are 9. The answer is 19. Checking, ___ and 4 are ___. 1 and ___ are ___, and 7 are 9.

5. Now try Examples 1 to 4 without help. Then turn back to page 73 and do Examples 6 to 10.

Getting a Hair Cut

1. Alice has to pay 50¢ to have her hair cut at the Star Barber Shop, and only 35¢ at Miller's Barber Shop. How much does she save by going to Miller's?

2. Alice has 62¢. How much will she have left if she has her hair cut at the Star Barber Shop? if she has it cut at Miller's?

3. Ted has 73¢. He must get his hair cut, and that costs 45¢. He thought, "I'll have ___ left."

Copy, subtract, and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
4.	51	37	75	30	31	70	71	82
	25	29	48	13	29	64	56	78
5.	95	81	86	97	471	783	273	492
	31	44	37	20	23	28	134	347
6.	$.84	$.44	$.87	$.63	$.92	$6.66	$5.92	$9.28
	.55	.19	.68	.25	.64	2.18	4.55	.19

Problems.

7. James took 52 newspapers from the office to sell last evening. When he had sold all that he could, he counted the ones that were left and found he had 14. How many newspapers had he sold?

8. Roy earned 29¢ last week and 54¢ this week. How much did he earn in the two weeks?

Children's Clothing Sale *

1. Mrs. Brown said, "Elsie, I can save ___ by buying you a silk dress at this sale tomorrow."

2. Elsie said, "I wish you would buy me a velvet dress. You could save ___ on that."

3. Mrs. Brown said, "Yes, but even at the sale a velvet dress costs ___ more than a silk dress."

4. How much can Mrs. Brown save by buying Elsie a hat at the sale?

5. How much can she save by buying Howard a suit at the sale? by buying him a sweater?

6. How much would both a suit and a sweater cost at the sale?

Nothing New

Copy, add, and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	\$4.98	\$5.60	\$6.50	\$8.76	\$5.67	\$4.00	\$7.98
	3.02	3.82	4.25	3.49	3.90	.76	.05
2.	89	75	99	49	13	105	24
	51	14	92	18	56	7	9
	52	81	10	72	701	20	322
	97	85	87	78	148	359	436

Copy, subtract, and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*
3.	\$4.86	\$9.79	\$10.45	\$9.75	\$3.21	\$4.50	\$8.35
	3.24	3.43	7.22	3.48	.05	2.00	6.20
4.	143	279	340	375	486	318	298
	122	149	339	169	259	18	79
5.	603	954	820	456	403	576	705
	202	646	19	129	201	50	703

Subtract without copying:

6. *a.* 21 from 23
b. 54 from 56
c. 40 from 47
d. 20 from 21
e. 12 from 17
f. 54 from 55
g. 12 from 15
h. 45 from 49
i. 72 from 80

7. *a.* Thirty-six from forty-three
b. Twenty-seven from thirty-two
c. Forty-five from fifty-two
d. Sixteen from twenty
e. Eighteen from twenty-two
f. Forty-eight from fifty-one
g. Twenty-four from thirty-one
h. Twenty-four from thirty
i. Forty-nine from fifty-one

Larger Numbers

1. Can you read these addresses?

a. 320 Green St.
b. 579 Main St.
c. 802 Pine St.
d. 110 South St.
e. 607 Sixth St.
f. 999 State St.

2. \$1.00 = 2 quarters and ___ dimes.

3. \$5.00 = 4 dollars, 9 dimes, and ___ cents.

4. \$3.73 = 3 dollars, 7 dimes, and ___ cents.

5. \$8.00 = 7 dollars, ___ dimes, and 10 cents.

6. \$6.00 = 5 dollars, 9 dimes, and ___ cents.

7. Count by hundreds from 100 to 1000; from 17 to 917; by tens from 97 to 267.

8. Tell the number which is (*a*) 100 more than 199; 41; 710; 650; 2. (*b*) 100 less than 999; 750; 405; 375; 100.

9. Write in figures:

a. Seven hundred seven
b. Five hundred thirty
c. Nine hundred forty-one
d. Three hundred three
e. Three hundred thirty
f. Three hundred thirty-three

10. Tom had a big bag of marbles. He said to a group of boys, "I'll give 10 marbles to the one who guesses most nearly how many marbles there are in this bag."

Billy guessed 420.
Alec guessed 395.
Ted guessed 276.
Harry guessed 499.

There were 405 marbles in the bag. Who should have the prize? Who made the poorest guess?

11. Tom gave 5 marbles to the boy who made the next nearest guess. Who got the 5 marbles?

12. Alec guessed within ___ of the right number.

More Subtraction

There are 235 pages in John's reader. He has read 148 pages. Today the teacher asked, "How many more pages have you to read, John?" Can you tell?

There are two ways to subtract to find out how many more pages John has to read. Ask your teacher which way you are to use.

First Way

(For the Second Way see page 80.)

To find out how many more pages John has to read, you subtract the number of pages read from the number of pages in the book. Write down the example like this :⟶

$$\begin{array}{r} 235 \\ 148 \\ \hline \end{array}$$

(1) Think, "8 from 15 is 7." Where do you write the 7?

(2) The 3 is now a 2. You cannot take 4 from 2; so think of the 2 as 12. Where do you think you get the 1 that goes with the 2 to make 12? (It comes from the next 2.)

(3) Think, "4 from 12 is 8." Where do you write the 8?

(4) The 2 is now a 1. Do you remember that you took 1 from it to make the 12?

(5) Think, "1 from 1 is 0." Do you write the 0?

(6) The finished example looks like this :⟶

$$\begin{array}{r} 235 \\ 148 \\ \hline 87 \end{array}$$

(7) To check, add upward to see if 87 and 148 equal 235. (The number of pages he has read and the number of pages he still has to read must equal the number of pages in the book, mustn't they?)

(8) Does it check? How many pages has he to read?

1. See if you can subtract 148 from 235 without help.

2. Can you subtract 158 from 235? 148 from 225?

Now practice Subtraction for Everybody on the next page.

Second Way

To find out how many more pages John has to read, subtract the number of pages read from the number in the book.

(1) Think, "8 and 7 are 15." Where do you write the 7?

(2) The 4 has now become a 5.

(3) Think, "5 and 8 are 13." Where do you write the 8? The 1 has now become a 2.

(4) Think, "2 and 0 are 2." Do you write the 0?

(5) The finished example looks like this :⟶

(6) To check, add upward to see if 87 and 148 equal 235. (The number of pages John has read and the number of pages he still has to read equal the number of pages in the book, don't they?) How many pages has he to read?

235
148

235
148
87

Subtraction for Everybody

These examples are worked correctly. Cover the answers and work and check each example. Then look at the answers to see if you made any mistake. If you find a mistake, try to see what you should have done.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	362	227	334	510	451	540	431
	178	149	98	148	378	151	45
	184	78	236	362	73	389	386
2.	280	413	350	311	357	562	310
	173	225	199	293	268	95	167
	107	188	151	18	89	467	143

3. Copy, subtract, and check :

321	435	522	213	541	660	330
162	378	73	96	276	85	86

Practice Work in Addition and Subtraction

Copy, subtract, and check:

	a	*b*	*c*	*d*	*e*	*f*
1.	942	460	743	984	770	965
	296	186	257	799	488	98
2.	$4.67	$5.10	$6.35	$5.45	$3.68	$9.57
	1.76	2.25	5.45	.55	.90	.08
3.	266	345	441	963	340	510
	85	166	297	688	76	464

Copy, add, and check:

4.	315	26	5	216	46	88
	9	75	67	38	253	880
	454	264	606	27	27	808
5.	35	70	506	22	79	20
	46	500	7	560	320	832
	273	43	42	73	54	54
	568	198	368	248	246	76
6.	$5.98	$6.84	$5.58	$9.88	$5.07	$5.60
	3.04	5.32	.07	8.99	.04	.06
	.32	.07	8.98	9.98	.03	6.66

How many mistakes can you find in these examples?

	a	*b*	*c*	*d*	*e*	*f*
7.	467	543	350	286	827	584
	+ 436	+ 275	− 96	+ 549	− 536	− 386
	903	818	254	835	291	198
8.	887	685	367	$3.20	$3.54	$3.87
	− 569	− 596	+ 464	− 2.98	+ 8.96	− 2.96
	217	89	831	$1.22	$11.50	$ 91

Troublesome Zeros

If you are using the First Way, study this page carefully. If not, skip to the Subtraction Practice on the next page.

Alice wanted to buy a $5.00 doll carriage. She had saved $3.75. How much more did she need?

Alice knew that she ought to subtract $3.75 from $5.00; so she put down the example like this:

$5.00
3.75

(1) She thought: "I'll have to take 5 from 10."

(2) Where is Alice going to get the 1 to go with the 0 to make 10? The next number is 0, and she can't take 1 from that, can she?

(3) This is what she did. She wrote:

$5.00 = 4 dollars, 9 dimes, and 10 cents = $4.9(10)
3.75 = 3 dollars, 7 dimes, and 5 cents = 3.7 5
1 dollar, 2 dimes, and 5 cents = $1.2 5

(4) Her answer was $1.25. To make sure it was right she added $1.25 and $3.75. Is their sum $5.00?

1.

$6.00	$5.9(10)
2.57	2.5 7
	$3.4 3

In doing this example I think, "7 from 10 is 3, 5 from 9 is ___, 2 from 5 is ___." My answer is ___. Does $3.43 + $2.57 = $6.00?

2.

$8.00	$7.9(10)
1.29	1.2 9

In doing this example I think, "9 from 10 is 1, 2 from 9 is 7, 1 from ___ is 6." My answer is ___. Does it check?

3.

$9.00
2.48

In doing this example I think, "8 from 10 is 2. 4 from ___ is 5, 2 from ___ is 6." My answer is ___. Does it check?

4. Can you subtract $2.48 from $9.00 without looking at the explanation in Example 3?

Learning to Subtract

5. $7.00 − 1.76 = ____

In doing this example I think, "6 from ____ is 4, 7 from ____ is ____, 1 from ____ is ____." The answer is ____.

6. $6.05 − 1.37 = ____

In doing this example I think, "7 from ____ is ____, 3 from 9 is ____, 1 from ____ is ____." The answer is ____.

7. $10.00 − 3.49 = ____

In doing this example I think, "9 from ____ is ____, 4 from 9 is ____, 3 from 9 is ____." The answer is ____.

Subtraction Practice for Everybody

1. How much change will you get from a 5-dollar bill if you spend $4.95? if you spend $3.06? $.78? $.09? $2.70? Check each answer.

2. How much change will you get from a 10-dollar bill if you spend $8.97? if you spend $3.04? $9.76? $3.40? $7.29? Check each answer.

Subtract and check:

	a	*b*	*c*	*d*	*e*	*f*
3.	508 − 156 = ____	782 − 340 = ____	300 − 198 = ____	541 − 206 = ____	704 − 640 = ____	895 − 687 = ____
4.	534 − 519 = ____	467 − 354 = ____	385 − 26 = ____	800 − 275 = ____	900 − 482 = ____	600 − 543 = ____
5.	800 − 69 = ____	700 − 156 = ____	500 − 293 = ____	380 − 276 = ____	407 − 93 = ____	287 − 87 = ____
6.	700 − 86 = ____	800 − 93 = ____	200 − 189 = ____	500 − 97 = ____	900 − 174 = ____	800 − 192 = ____

"Watch Your Step"

Give the missing numbers:

1. 105 and 10 more are ?
2. The sum of 500 and 14 is?
3. 63 − 25 = ?
4. Add $1.76 and $3.00.
5. 175 and 504 are ?
6. 64 is ? more than 56.
7. 50 and 152 more is ?
8. 54 from 73 is ?
9. 29 more than 83 is ?
10. 176 is ? less than 210.
11. 50 is ? more than 26.
12. 907 − 599 = ?
13. 64 is 15 less than ?
14. $4.00 − $1.57 is ?
15. 98 and ? are 308.
16. 67 and 105 are ?
17. 75 less 29 is ?
18. 67 − 58 = ?
19. 87 is ? less than 100.
20. Subtract $4.59 from $8.00.
21. 400 less 172 is ?
22. 75 is ? less than 94.
23. $5.25 more than $6.90 is ?
24. 476 + 42 + 500 = ?

Your Change

1. How much change will you get from a quarter if you spend $.04? if you spend $.09? $.17? $.22?

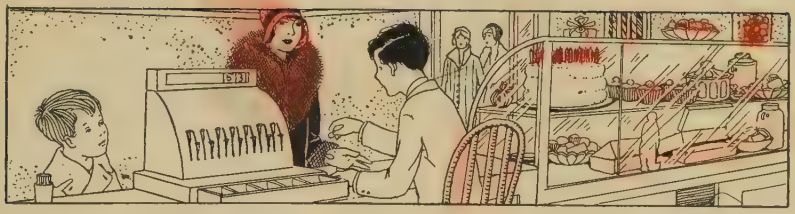
2. How much change will you get from a half dollar if you spend $.04? if you spend $.13? $.23? $.37?

3. How much change will you get from a dollar if you spend $.03? if you spend $.18? $.45? $.76?

4. How much change will you get if you have:

(*a*) thirty-five cents and spend thirty-two cents?
(*b*) a quarter and spend eighteen cents?
(*c*) a half dollar and spend forty-eight cents?
(*d*) sixty cents and spend fifty-four cents?
(*e*) three quarters and spend seventy-two cents?

Making Change *



George's father has a restaurant, and sometimes he lets George make change when the people pay for their meals. Do you know how to make change?

Today a man gave George a dollar. He owed 85¢. (1) George said, "85." (2) Then, dropping a nickel into the man's hand, he said, "90." (3) Dropping a dime into his hand, he said, "$1.00."

1. Another bill was 37¢, and the lady gave George a half dollar. In giving the change (1) George said, "37." (2) Then, dropping three cents into her hand, he said, "___." (3) Dropping a ___ into her hand, he said, "50."

2. In giving the change from 75¢, when a boy paid a bill of 52¢, (1) George said, "52." (2) Then, dropping ___ cents into his hand, he said, "55." (3) Dropping a dime into his hand, he said, "___." (4) Dropping another dime into his hand, he said, "___."

3. In giving the change from two dollars, when a man paid a bill of 72¢, (1) George said, "72." (2) Then, giving the man ___ cents, he said, "75." (3) Giving him a ___, he said, "___." (4) Giving him a dollar bill, he said, "___."

4. Tell what you would say and what coins you would give in change from a dollar bill after purchases amounting to :

92¢	71¢	57¢	35¢	12¢
87¢	64¢	42¢	27¢	2¢

A Page of Subtraction

Subtract and check:

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	44	51	74	53	40	50	64
	36	27	29	38	16	35	27
2.	255	302	501	630	485	807	731
	98	96	22	57	96	38	49
3.	544	510	845	731	901	860	703
	265	171	397	288	164	288	159
4.	$.52	$.87	$.76	$.42	$.95	$.96	$.32
	.24	.09	.17	.28	.75	.16	.18
5.	$2.46	$3.85	$8.76	$3.42	$5.03	$5.11	$6.05
	1.63	3.24	1.97	.84	1.89	3.84	1.17
6.	900	600	800	700	600	500	400
	287	547	298	147	259	337	176

Give the missing numbers:

	a	*b*	*c*
7.	18 + ? = 24	8 + ? = 10	27 + ? = 33
8.	48 + ? = 53	48 + ? = 52	48 + ? = 51
9.	56 + ? = 62	9 + ? = 14	9 + ? = 11
10.	63 + ? = 71	24 + ? = 30	45 + ? = 50
11.	36 + ? = 44	6 + ? = 11	16 + ? = 20
12.	27 + ? = 30	49 + ? = 51	45 + ? = 52
13.	7 + ? = 12	27 + ? = 35	27 + ? = 32
14.	28 + ? = 34	8 + ? = 13	49 + ? = 52
15.	9 + ? = 12	28 + ? = 30	16 + ? = 21

What You Should Know

1. See if you can do the addition tests on pages 19 and 20 in 4 minutes.

2. Can you do the subtraction tests on pages 45 and 46 in 4 minutes?

3. Add and check:

a	*b*	*c*	*d*	*e*	*f*
			$.09		5
63	7		.04		6
39	309	$4.70	.32	573	7
70	54	.05	.89	198	8
48	204	2.99	.75	134	9

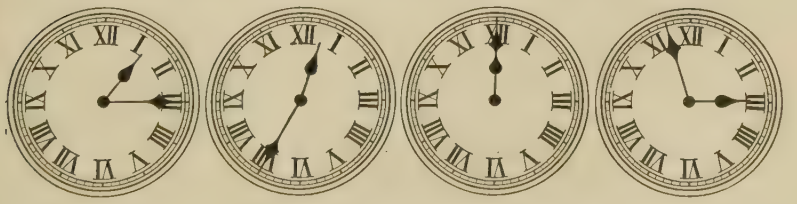
4. Subtract and check:

a	*b*	*c*	*d*	*e*	*f*
947	654	254	$2.74	$3.05	$8.00
325	376	98	1.99	1.74	5.98

5. John says, "I can form 6 three-figure numbers with the figures 1, 2, and 3, and not use the same figure more than once in any number." Can you?

6. There are ___ feet in a yard; ___ pints in a quart; ___ quarts in a gallon; ___ inches in a yard.

7. What time is it by each of these clocks?



8. Count by 7's to 70, beginning 7, 14, 21, · · ·

Progress Test No. 4

Write just the answers to these examples on your paper. Number each answer. (Record your score.)

Subtract and check:

1.	2.	3.	4.	5.	6.
84	$6.55	670	235	500	$10.00
68	4.32	58	178	386	6.98

7. Take thirty-two from thirty-five.

8. How much change will you get if you have fifty cents and spend forty-two cents?

9. Tell the number that is 100 less than 798; 100 less than 530; 100 less than 604.

10. If you have $10.00 and spend $2.49, how much have you left?

11. The sled my mother wants to buy me costs $6.49. The sled I want costs $8.75. If she gives me the $6.49, how much must I earn so that I can buy the sled I want?

12. I am 54 in. tall and Billy is only 49 in. tall. What is the difference in our heights?

13. At noon today we made 108 snowballs for a snow battle we wanted to have after school. The boys from the other fort came and captured all but 9 of the snowballs. Do you know how many they captured?

Standards: X, 12. Y, 10. Z, 7.

Finding Out What You Know and What You Don't Know

TEST I. ADDITION

Find these sums:

1.	2.	3.	4.	5.	6.	7.	8.
				3			
			7	5		7	
54	3	7	8	8	77	26	176
23	16	16	9	6	65	23	594

9.
284
32
170
206

10.
$1.73
1.24
.69
.25

11. Is an addition example checked if you get the same answer by adding downward that you got by adding upward?

12. Doris has 2 half dollars, a quarter, 3 nickels, and 4 cents. How much money has she?

TEST II. NUMBERS — TIME — MEASUREMENT

1. Tell the number that is 100 more than 116; 275; 898.

2. Write in figures: seven hundred seven.

3. Tell the missing numbers: 48, 52, 56, ___, ___, ___, ___, 76.

4. We have a lunch and play period from 11:00 A.M. until 1:15 P.M. That is ___ hours and ___ minutes.

5. X = ?; IV = ?; VI = ?; IX = ?; XI = ?

6. Draw a clock face showing where the hands are at 9:45.

7. ___ ft. = 1 yd.

8. ___ qt. = 1 gal.

9. ___ in. = 1 yd.

10. ___ pt. = 1 qt.

1. 116 less 44 is ?
2. \$2.42 from \$6.87 is ?
3. 98¢ is ? more than 74¢.
4. Subtract 377 from 425.
5. 9 less 0 is ?
6. 737 − 39 = ?
7. 59 is ? less than 84.
8. \$5.00 − \$1.58 = ?
9. How much change will you get from a quarter if you spend 7¢?
10. Tell what coins you would give in change from a dollar bill after a purchase amounting to 67¢.

The Practice You Need

If you made any mistakes in the Tests I to III, you need practice on the examples like the ones you missed. This chart tells you where to find the practice you need.

TEST I	TEST II	TEST III
1. p. 18	1. p. 31	1. p. 38
2. pp. 51 and 52	2. p. 31	2. p. 70
3. pp. 51 and 52	3. p. 31	3. p. 38, Ex. 1
4. p. 52, Exs. 10 and 11	4. p. 66	4. p. 80, Exs. 1, 2, and 3
5. p. 53, Ex. 9	5. p. 41	5. p. 33, Exs. 1 and 2
6. pp. 55 and 56	6. pp. 41 and 42	6. p. 80, Ex. 3
7. p. 56, Ex. 10	7. p. 13	7. p. 75
8. p. 61	8. p. 13	8. p. 83, Exs. 1 and 2
9. p. 63	9. p. 13	9. p. 84
10. p. 65	10. p. 13	10. p. 85
11. p. 59		
12. p. 64, Exs. 3 and 4		

Just for Fun

Jean said: "I have four sisters, Molly, Polly, Dotty, and me." (What's wrong?)

CHAPTER V

MULTIPLICATION AND DIVISION BY TWOS

Selling Newspapers

Tom sells papers every afternoon at 2 cents each. How many cents does he get for 1 newspaper? 2? 3?

Looking at the table below, find out how much he has when he sells 4 newspapers; 5 newspapers; 6; 7; 8; 9.

2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2
2 twos are 4	2	2	2	2	2	2	2
3 twos are 6	2	2	2	2	2	2	2
4 twos are 8	2	2	2	2	2	2	2
5 twos are 10	2	2	2	2	2	2	2
6 twos are 12	2	2	2	2	2	2	2
7 twos are 14	2	2	2	2	2	2	2
8 twos are 16	2	2	2	2	2	2	2
9 twos are 18							

Look at the table above and tell:

1. How many are 3 2's? 6 2's? 9 2's? 7 2's? 8 2's?

2. What is the cost of 8 two-cent stamps? 9 two-cent stamps? 7 two-cent stamps? 6 two-cent pencils?

Practice with Twos in Multiplication

One day a man asked Tom for 5 newspapers. He handed the man the papers and said, "Ten cents, please." Tom didn't add to find out how much to charge for 5 papers. He knows that five 2's are 10. He also knows that:

One 2 is 2.	Four 2's are ___.	Seven 2's are ___.
Two 2's are 4.	Five 2's are ___.	Eight 2's are ___.
Three 2's are ___.	Six 2's are ___.	Nine 2's are ___.

Saying "Five 2's are 10" is *multiplying* 2 by 5.

We usually write *multiplication* examples like the ones in the table below. Read them, beginning, "One 2 is 2, two 2's are 4, three 2's are 6," and so on.

FIRST MULTIPLICATION TABLE OF TWOS[1]

2	2	2	2	2	2	2	2	2	2
1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20

The sign × always tells you to multiply.

The first example below means "5 2's are ___." Write the answers to all of the following examples.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
1.	2	2	2	2	2	2	2	2	2
	×5	×3	×6	×9	×4	×7	×2	×8	×1
2.	2	2	2	2	2	2	2	2	2
	×7	×4	×2	×5	×1	×3	×8	×9	×6

[1] NOTE TO THE TEACHER. All multiplication facts in each table should be practiced in miscellaneous order until each can be responded to immediately and independently. The tables are primarily for reference only.

Easy Work

1. Rita bought five 2-cent pencils. How much did she pay for them? (What are five 2's?)

2. June bought two 5-cent pencils. How much did she pay for them? (What are two 5's?)

Here are the 10 cents:
Can you see the 5 2's?
Can you see the 2 5's?

3. How much are 2 4's? How much are 4 2's? Can you show by a picture that these are the same?

4. How much are 3 2's? 2 3's?

Can you finish these sentences?

5. Six 2's are 12, and two 6's are ___.

6. Four 2's are 8, and two 4's are ___.

7. Three 2's are ___, and two 3's are ___.

8. Eight 2's are ___, and two 8's are ___.

9. Nine 2's are ___, and two 9's are ___.

Second Multiplication Table of Twos

1	2	3	4	5	6	7	8	9	10
2	2	2	2	2	2	2	2	2	2
2	4	6	8	10	12	14	16	18	20

10. Read and answer these examples:

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
5	7	6	4	2	2	2	2	2	2
× 2	× 2	× 2	× 2	× 7	× 1	× 8	× 9	× 2	× 3

Using the Facts about Two

1. At 2¢ each find the cost of:

4 pencils	6 balls	8 stamps	3 erasers
5 apples	2 pads	9 candies	7 whistles

2. How many pints are there in a quart? in 4 quarts? in 8 quarts? in 9 quarts?

3. How many children are needed to make a seesaw go? There are 6 seesaws on our playground. It takes ___ children to make all the seesaws go at one time.

4. Ruth was away for two weeks. Do you know how many days she was away?

5. We are having a folk dance this afternoon, called "The Horn Dance." There are eight couples in the dance. Each child must have a horn. How many horns are needed?

6. My mother asked me to pare the potatoes for dinner. When I asked her how many to pare, she said, "Allow 2 potatoes for each person." Since there were to be 3 persons for dinner, I pared ___ potatoes.

Sometimes multiplication examples are written like this: $2 \times 4 = 8$; $2 \times 5 = 10$. They are read, "Two 4's are 8"; "Two 5's are 10." 2×4 is also read, "Two times four."

7.	$2 \times 9 =$	$1 \times 2 =$	$5 \times 2 =$	$8 \times 2 =$
8.	$9 \times 2 =$	$2 \times 3 =$	$2 \times 1 =$	$2 \times 4 =$
9.	$2 \times 2 =$	$2 \times 5 =$	$2 \times 7 =$	$3 \times 2 =$
10.	$2 \times 8 =$	$4 \times 2 =$	$6 \times 2 =$	$2 \times 6 =$

11. Think of each of the above answers and tell the number that is 1 more than the answer.

12. $\begin{cases} 1+1+1=? \\ 3 \times 1 =? \end{cases}$ $\begin{cases} 1+1+1+1=? \\ 4 \times 1 =? \end{cases}$ $\begin{cases} 1+1+1+1+1=? \\ 5 \times 1 =? \end{cases}$

13. $6 \times 1 =?$ $7 \times 1 =?$ $8 \times 1 =?$ $9 \times 1 =?$

Multiplication without Carrying

Helen's mother asked her to go to the store for three 12-cent raisin cakes. This is the way Helen added to find how much money she would need:

How much did she need for three raisin cakes?

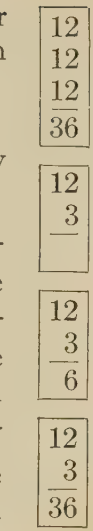
Her mother multiplied to find how much money to give Helen. This is the way she did it.

(1) She put down the example like this: ——→

(2) She thought, "Three 2's are 6," and she wrote the 6 under the 3 and the 2 like this: ——→

(3) She thought, "Three 1's are 3," and she wrote the 3 under the 1, just in front of the 6, as shown in this box: ——→

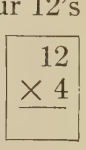
How much did Helen's mother find she should give Helen for the three raisin cakes? Is that what Helen found she would need?



Adding a column of three 12's is a long way to find three 12's. Multiplying 12 by 3 is a short way to find three 12's.

1. Find four 12's the long way. (That is, write four 12's in a column and find the sum.)

2. Find four 12's the short way like this: ——→



3. Multiply without copying:

22	32	14	10	31	43	14	22
2	2	2	2	2	2	2	2

Copy and multiply:

4.

61	53	92	84	71	91	74	21
2	2	2	2	2	2	2	3

5.

21	22	21	22	21	12	21	12
4	4	5	3	6	3	7	2

Multiplication with Carrying

There are 35 children in our room at school. Tomorrow we are going to Sandy Beach on a picnic. The teacher has hired two busses to take us. Each bus has 18 seats besides the driver's. We asked the teacher whether there would be room enough for everybody in the busses. She said that we could find out easily by multiplying 18 by 2. This is the way she showed us how to do it:

(1) She said, "Two 8's are 16," and wrote the 6 under the 2 like this: ⟶

$$\begin{array}{r} 18 \\ \times\ 2 \\ \hline 6 \end{array}$$

(2) She said, "Two 1's are 2, and 1 to carry from the 16 is 3." She wrote the 3 under the 1, right in front of the 6, like this: ⟶

$$\begin{array}{r} 18 \\ \times\ 2 \\ \hline 36 \end{array}$$

(3) This shows that 2 18's are ___.

How many people do the two busses hold?
Will there be room for the teacher, too? Why?

1. $\begin{array}{r} 19 \\ \times\ 2 \\ \hline \end{array}$ In this example, think, "Two 9's are ___."
Write the ___ and carry the ___.
Think, "Two 1's are 2, and 1 to carry are ___."
Write the ___. The answer is ___.

2. $\begin{array}{r} 26 \\ \times\ 2 \\ \hline \end{array}$ In this example, think, "Two 6's are ___."
Write the ___ and carry the ___.
Think, "Two 2's are ___, and 1 to carry are ___."
Write the ___. The answer is ___.

3. $\begin{array}{r} 75 \\ \times\ 2 \\ \hline \end{array}$ In this example, think, "Two ___ are ___."
Write the ___, and carry the ___.
Think, "Two ___ are ___, and 1 to carry are ___." Write the 15. The answer is 150.

4. Now try Examples 1 to 3 without help.

Multiplication

(1) Tell what you would *think*, *carry*, and *write* in these multiplication examples:

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
49	57	76	83	22	12	22	48	56	88
2	2	2	2	8	9	7	2	2	2

(2) Copy each of the above examples and multiply.

A Matching Game

(3) What is the answer to the first example under I in this box?

Can you find an example under II that has the same answer? Which one is it?

Tell the answer to each example under I and then find which example under II has the same answer.

	I	II
1.	$4 + 2$	$10 - 2$
2.	4×2	$8 + 7$
3.	2×9	2×5
4.	$17 - 2$	$13 - 9$
5.	2×2	$13 + 5$
6.	5×2	3×2
7.	$9 + 7$	2×8

Ten Minutes for Ten Examples

1.	**2.**	**3.**	**4.**	**5.**
805	746	307	$8.76	64
− 505	− 509	− 58	+ .08	509
				80
				67

6. Does $8 \times 2 = 31 - 15$? **7.** Does $6 \times 2 = 2 \times 6$?

8. Write: seventy-seven dollars and seven cents.

9. $6.00 is equal to 5 dollars, ___ dimes, and 10 cents.

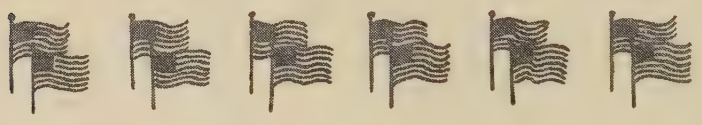
10. How much change would you get from a two-dollar bill after a purchase amounting to $1.67?

A Flag Drill

(1) We are going to have a flag drill in our room on Washington's Birthday. Each child must hold a flag in each hand; so ___ flags are needed by each child.

(2) Our teacher has only 12 flags. We wanted to know how many children could be in the drill. Can you guess how we found out?

(3) We counted out the flags by twos like this:



How many 2's are there in 12?

(4) How many 2's are there in 4? in 8? 14? 6? 10? 16?

(5) These two questions mean the same:

How many 2's are there in 12? (Look at the picture.)
How many times is 2 contained in 12?

(6) When you find out how many 2's there are in a number, we say you are "dividing by 2." 12 divided by 2 is 6.

(7) We usually write a division example like this: We can read it in two ways. We can say: "2 is contained in 12, 6 times," or "12 divided by 2 is 6."

$$2\overline{)12}\quad 6$$

(8) Read the examples in these boxes like this:

$$2\overline{)8}\quad 4$$

a. 2 is contained in 8, ___ times.

$$2\overline{)14}\quad 7$$

b. 2 is contained in ___, ___ times.

$$2\overline{)18}\quad 9$$

c. ___ is contained in ___, ___ times.

First Division Table of Twos

2)2	2)4	2)6	2)8	2)10	2)12	2)14	2)16	2)18	2)20
1	2	3	4	5	6	7	8	9	10

1. Read the examples in the table.

2. Cover the answers in the table and see if you can say them. You may look at the answer when you can't remember it. You should try until you can say them all forward and backward without looking at the answers.

3. Tell the answers to these:

2)6 2)12 2)18 2)4 2)10 2)16 2)2 2)8 2)14

4. How many 2-cent pencils can you buy for 8¢? for 20¢? 16¢? 12¢? 18¢? 14¢? 6¢?

5. It takes 2 sheets of paper to make a fancy candy box. Marie has 14 sheets of paper. How many boxes can she make?

6. Johnny has invited 20 children to a show in his back yard. He will seat them on orange boxes. Each box will seat 2 children; so he must ask the grocer for ___ boxes.

7. Complete: 8 twos are ___; and 16 divided by 2 is ___.

8. What are 5 twos? 2 fives? What is 10 divided by 2? 10 divided by 5?

9. Joe had 21 cents. He paid 3¢ for a top, 6¢ for a pencil, and bought large marbles that cost 2¢ each with the remainder. How many marbles did he buy?

One Half

1. If you cut a pie into two equal parts, each part is called ___ ___ of the pie.

2. If you divide 8 books into two equal piles, each pile will contain one half of the 8 books. How many books will there be in each pile? One half of 8 books is ___ books.

3. One half of 6 books is ___ books. $\frac{1}{2}$ of 6 is 3.

4. One half of 10 books is ___ books. $\frac{1}{2}$ of 10 is ___.

When we wish to find one half of a number of things, we divide the number by 2. Eight books divided by 2 is 4 books. 8 divided by 2 is 4.

We use this sign ÷ *to mean "divided by."*

8 ÷ 2 = 4 is read, "8 divided by 2 is 4."

5. Copy and continue the table *a* below to $\frac{1}{2}$ of 20 = 10; continue table *b* to 20 ÷ 2 = 10; and table *c* to $2\overline{)20}$.

a.	*b.*	*c.*		
$\frac{1}{2}$ of 2 = 1	2 ÷ 2 = 1	$2\overline{)2}$	$2\overline{)4}$	$2\overline{)6}$
$\frac{1}{2}$ of 4 = 2	4 ÷ 2 = 2	1	2	3
$\frac{1}{2}$ of 6 = 3	6 ÷ 2 = 3			

6. I had 12 paper dolls and gave one half of them to my sister. I gave her ___. She gave me one half of her 14 jacks. How many jacks did she give me?

7. My brother is 16 years old. I am one half as old. Do you know how old I am?

8. There are ___ eggs in a dozen eggs. I bought one-half dozen eggs today. How many eggs did I buy?

9. My mother gave me 18¢ and said, "Share this equally with your sister." I took ___ cents and gave my sister ___ cents.

Some Easy New Division Facts

1. Look at this picture of 12 pennies.

Can you see 6 2's?

Can you see 2 6's?

$2\overline{)12}$ $\quad 6$ (2 is contained in 12, 6 times.)

$6\overline{)12}$ $\quad 2$ (6 is contained in 12, 2 times.)

2. Show by a drawing of flags that there are 2 fives in 10 and there are ___ twos in 10.

3. Show by a drawing of buttons that there are 2 ___ in 14 and there are ___ twos in 14.

4. Copy and finish row *a* to $2\overline{)20}$ and row *b* to $10\overline{)20}$.

a. $2\overline{)2}\ 1$ $\quad 2\overline{)4}\ 2$ $\quad 2\overline{)6}\ 3$ $\quad 2\overline{)8}\ 4$ $\quad 2\overline{)10}\ 5$

b. $1\overline{)2}\ 2$ $\quad 2\overline{)4}\ 2$ $\quad 3\overline{)6}\ 2$ $\quad 4\overline{)8}\ 2$ $\quad 5\overline{)10}\ 2$

5. Read your finished table in this way: "2 is contained in 2, 1 time; 2 is contained in 4, 2 times"; and so on.

Second Division Table of Twos

$1\overline{)2}$	$2\overline{)4}$	$3\overline{)6}$	$4\overline{)8}$	$5\overline{)10}$	$6\overline{)12}$	$7\overline{)14}$	$8\overline{)16}$	$9\overline{)18}$	$10\overline{)20}$
2	2	2	2	2	2	2	2	2	2

6. Read the above table in this way: "1 is contained in 2, 2 times; 2 is contained in 4, 2 times"; and so on.

Watch the Signs!

Janet is going on a picnic this afternoon. She has 12¢ to buy some fruit. Pears cost 6¢ each. Plums cost 2¢ each.

(1) How many plums can she get for 12¢?

(2) How many pears can she get for 12¢?

Answer quickly: (Do not use a pencil.)

	a	*b*	*c*	*d*
1.	$2 \div 2 = ?$	$10 \div 2 = ?$	$14 \div 2 = ?$	$18 \div 9 = ?$
2.	$4 \div 2 = ?$	$14 \div 7 = ?$	$16 \div 8 = ?$	$8 \div 2 = ?$
3.	$10 \div 5 = ?$	$18 \div 2 = ?$	$8 \div 4 = ?$	$16 \div 2 = ?$
4.	$8 + 2 = ?$	$8 - 2 = ?$	$8 \times 2 = ?$	$8 \div 2 = ?$
5.	$10 + 2 = ?$	$10 - 2 = ?$	$2 \times 10 = ?$	$10 \div 2 = ?$
6.	$18 + 2 = ?$	$18 - 2 = ?$	$2 \times 18 = ?$	$18 \div 2 = ?$
7.	$14 + 2 = ?$	$14 - 2 = ?$	$2 \times 14 = ?$	$14 \div 2 = ?$
8.	$2 + 2 = ?$	$2 - 2 = ?$	$2 \times 2 = ?$	$2 \div 2 = ?$
9.	$16 + 2 = ?$	$16 - 2 = ?$	$2 \times 16 = ?$	$16 \div 2 = ?$
10.	$6 + 2 = ?$	$6 - 2 = ?$	$6 \times 2 = ?$	$6 \div 2 = ?$
11.	$4 + 2 = ?$	$4 - 2 = ?$	$4 \times 2 = ?$	$4 \div 2 = ?$
12.	$12 + 2 = ?$	$12 - 2 = ?$	$2 \times 12 = ?$	$12 \div 2 = ?$
13.	$20 + 2 = ?$	$20 - 2 = ?$	$2 \times 20 = ?$	$20 \div 2 = ?$

Add and check: (Use a pencil.)

14.	**15.**	**16.**	**17.**
\$3.75	\$5.39	\$4.07	\$5.47
2.98	8.07	.63	8.73
4.63	.25	.79	9.15

Subtract and check: (Use a pencil.)

18.	**19.**	**20.**	**21.**
\$567.93	\$538.22	\$39.98	\$27.56
289.47	179.85	29.98	23.49

Problems

1. Jimmy's mother sent him to the post office to buy 2-cent stamps. She gave him a dime. He was wondering how many he ought to get. He asked himself, "How many 2's are there in 10?" How many stamps should he get?

2. How many 2-cent stamps could you buy for 6¢? for 10¢? 14¢? 8¢? 12¢? 18¢? 16¢? 20¢?

3. My mother bought half a dozen oranges. There are three persons in our family. How many oranges can we each have? (6 oranges ÷ 3 is ___ oranges.)

4. When my father takes me on the train, he pays only half fare for me. When his ticket costs 20¢, mine costs ___¢. What is the cost of a half fare when the full fare is 8¢? 14¢? 18¢? 12¢? 16¢? 10¢?

5. I was standing in line for a drink at the fountain. There were 4 children in front of me and 3 behind me. There were ___ in line, counting me.

6. The teacher said, "Half of you children go to the other fountain." The three children behind me went. Should I go, too?

7. Gladys has 23 stamps in her stamp book. Her brother said, "I have twice as many stamps as you have." Her brother must have ___ stamps.

8. Each page in their stamp books holds 10 stamps, and there are 9 pages on which they can paste stamps. Gladys wondered how many stamps her book would hold. This is the way she found out. She turned to the first page and said, "10." She turned to the second page and said, "20." Tell what she said as she turned to each page up to the ninth. How many stamps does her book hold?

Larger Numbers — Reading, Writing, and Counting

1. The principal sent a note to our teacher to find out how much paper she had left in the supply room. The teacher asked me to go into the supply room to find out. There were 100 sheets in each package of paper; so I said "100" as I pointed to the first package, "200" as I pointed to the second package, and so on. Tell what I said as I pointed to each package up to the last one, which was the 15th. How many pieces of paper did our teacher have?

2. 953 is read: "___ hundred ___ ___."

3. 1053 is read: "___ hundred ___ ___."

4. 1153 is read: "___ hundred ___ ___."

What numbers belong in these blank spaces?

5. 600, 700, 800, ___, ___, ___, ___, 1300.

6. 830, 930, 1030, ___, ___, ___, ___, 1530.

7. 1098, 1198, 1298, ___, ___, ___, ___, 1798.

8. Name the number that is 100 more than each of these numbers and the number that is 100 less than each:

675 798 1052 1367

9. Write the hundreds from 10 hundred to 25 hundred like this:

1000 (10 hundred)
1100 (11 hundred)
1200 (12 hundred)

10. Read these numbers: 2657 7439 4602 2056

11. Ten hundred is also called "one thousand," twenty hundred is called "two thousand." Write the thousands from 1 thousand to 9 thousand like this:

1,000 (1 thousand)
2,000 (2 thousand)
3,000 (3 thousand)

More Work with Numbers

1. 2,800 can be read, "28 hundred" or "2 thousand, 8 hundred." Read these numbers in two ways: 1,700; 1,100; 2,400; 3,600; 4,800.

2. 2,576 is read: "two thousand, five hundred seventy-six."

(The figure before the comma tells how many thousands. The three figures after it tell how many more.)

a. 2,653 is read: "___ thousand, ___ hundred ___ ___."
b. 4,271 is read: "___ thousand, ___ hundred ___ ___."
c. 1,407 is read: "___ thousand, ___ hundred ___."
d. 5,005 is read: "___ thousand, ___."

3. Read each of these numbers:

a.	*b.*	*c.*	*d.*	*e.*	*f.*
9,764	4,073	5,247	7,981	6,666	5,600
5,600	5,000	1,200	9,099	8,008	4,404
7,860	2,814	3,137	9,909	7,006	1,000

4. If 5,000; 600; 70; and 4 are added as shown in this box, the answer is ___ thousand, ___ hundred ___ ___.

5,000
600
70
4
5,674

5. *Add:* (Before reading each answer count off three places from the right and put in a comma. The figure before the comma will show the number of thousands.)

a. 5,000; 600; 80; 4
b. 4,000; 700; 60; 5
c. 5,000; 70; 3
d. 6,000; 700; 4
e. 9,000; 5
f. 8,000; 60

6. Jim wanted to write in figures: one thousand, one. He didn't know how, but this is the way he found out. He put down 1,000 and added 1 to it. Is his answer one thousand, one?

1,000
1
1,001

More Work with Numbers

1. Write these numbers in figures. (Don't forget to put a comma after the number of thousands. There are always *three* figures following the comma.)

a. Seven thousand.
b. Seven thousand, two.
c. Nine thousand.
d. Nine thousand, five.
e. Nine thousand, two hundred.
f. Four thousand, seventy-six.
g. Two thousand, four hundred.
h. Forty-eight hundred.

2. Ask your teacher to dictate some large numbers to see if you can write them in figures.

Can you read these amounts of money?

3.	**4.**	**5.**	**6.**
$2,000	$2,400.00	$9.09	$8.08
$3,800	$2,400.50	$90.90	$80.08
$4,080	$3,862.00	$909.09	$808.80
$5,008	$3,862.50	$9,909.09	$8,080.08
$6,864	$4,630.25	$9,090.90	$8,880.80
$7,803	$2,863.10	$9,990.09	$8,080.80

Write in figures, using the dollar sign and cents point:

7. Twenty dollars and twenty cents.
8. Two hundred two dollars and twenty cents.
9. Two thousand, two hundred dollars and fifty cents.
10. Thirty-three dollars and three cents.
11. Three hundred three dollars.
12. Three hundred thirty dollars and thirty cents.
13. Three thousand, three hundred thirty-five dollars and thirty cents.
14. Three thousand dollars and thirty cents.
15. Three thousand three dollars and thirty cents.
16. Three thousand, three hundred three dollars and three cents.

United States Money *

1. Subtract and check:

a	*b*	*c*	*d*	*e*
\$9,099.54	\$964.67	\$987.00	\$3,876.25	\$423.00
7,083.23	55.43	1.65	876.25	400.09

2. Add and check:

\$3,076.23	\$645.28	\$4,003.28	\$105.25	\$4,087.00
456.32	49.76	46.97	.75	98.74
8.78	43.00	6.76	.43	104.07

Add:

3. \$16, \$24, and \$16.50

4. \$30, \$25.25, and \$10

5. \$2.98, \$3, and \$4

6. \$5, \$6, and \$.25

7. \$12, \$15, and \$14.50

8. \$280 and \$175.50

9. \$270.25 and \$150

10. \$2,860.50 and \$200

Subtract:

11. \$24.50 from \$50

12. \$23.30 from \$80

13. \$9.60 from \$25

14. \$.80 from \$2.00

15. \$109.50 from \$200

16. \$350 from \$550.75

17. \$1,750.25 from \$5,000

18. \$162 from \$3,280.50

19. Add twenty-four dollars to thirty-two dollars and fifty cents.

20. Subtract twenty-five dollars and fifty cents from thirty dollars.

21. Subtract twenty-five dollars from thirty-seven dollars and fifty cents.

22. Add one thousand, three hundred dollars to two thousand five dollars.

23. Subtract two thousand dollars from five thousand dollars and fifty cents.

Picking Cherries "on Halves"

Last summer when we were in the country a farmer told us boys that if we picked cherries for him we could keep half of the cherries to pay us for our work. The first day we picked 46 quarts. We didn't know exactly how many quarts to keep. Can you tell? We knew we ought to divide 46 by 2 to find out. This is the way to do it:

(1) Put down the example like this: ⟶ 2)46

(2) Think, "Two is contained in 4 *two* times," and write the 2 below the 4 like this: ⟶

2)46
2

(3) Think, "Two is contained in 6 *three* times," and write the 3 below the 6 like this: ⟶

2)46
23

(4) This shows that 46 divided by 2 is 23.

How many quarts of cherries did we keep?

Try these examples:

1. 2)46 **2.** 2)82 **3.** 2)64 **4.** 2)84 **5.** 2)22 **6.** 2)44

7. We picked 28 quarts of cherries on Monday, 62 on Tuesday, 66 on Wednesday, 24 on Thursday, 88 on Friday, 48 on Saturday. How many quarts did we keep each day?

Cover the answers to these division examples and see if you can get the right answers.

8. 4)48	**9.** 3)63	**10.** 5)55	**11.** 4)84	**12.** 3)66
12	21	11	21	22
13. 4)88	**14.** 3)33	**15.** 3)36	**16.** 6)66	**17.** 8)88
22	11	12	11	11

Checking Division

(1) $\boxed{\begin{array}{r} 2\overline{)46} \\ 23 \end{array}}$ Can you think of a way to prove that 23 is one half of 46?

(2) If it is, would $2 \times 23 = 46$? Does $2 \times 23 = 46$?

(3) Look at Example 8 on page 108. Does $4 \times 12 = 48$?

(4) Look at Example 9. Does $3 \times 21 = 63$?

(5) Look at Example 11. Does $4 \times 21 = 84$?

(6) Look at Example 14. Does $3 \times 11 = 33$?

Prove your answers to all the examples at the bottom of page 108 by multiplying the answer by the number you divided by. You should get the number you divided. If you don't, you have made a mistake.

A Review

Add: **1.** 79, 63, 23, 35 **2.** \$46.75, 79.86, 83.90, 24.62

3. Find the sum of twenty-eight hundred sixty and sixteen hundred thirty-five.

4. Find the difference between four hundred sixty-nine and two hundred seventy-five.

Subtract: **5.** 380 − 254 **6.** 407 − 173 **7.** 895 − 678 **8.** 400 − 276

Multiply: **9.** 56 × 2 **10.** 75 × 2 **11.** 22 × 8 **12.** 72 × 2 **13.** 88 × 2

14. A dollar is worth 2 quarters, 4 dimes, and ___ cents.

15. A dollar is worth 3 quarters, 1 dime, and ___ nickels.

16. Write with dollar sign and cents point:

a. One hundred twenty-nine cents.

b. Five hundred forty-three cents.

Can You Work These Problems?

1. We drove to Newton and back last evening. When we got back, I looked at the speedometer. We had driven 44 miles. How far is it to Newton?

2. My mother baked 48 ginger cookies yesterday. She told me to take half of them to my aunt. I took 24 cookies to her. Was that the right number?

3. There are 28 children in our room at school. If each two children use one songbook, how many books do we need?

4. My mother gave me 24¢ and told me to buy some apples. The apples were 2¢ each. I was wondering how many the grocer would give me. Do you know?

5. He picked them up by 3's and put them in the bag. I counted 4 handfuls as he put them in. Did I get the right number?

6. Of the 64 children examined by the school nurse, she said one half were under weight. That means that ___ children were under weight.

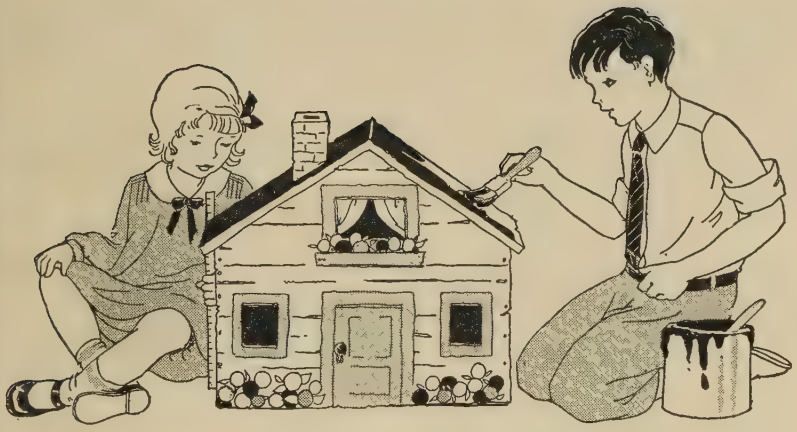
7. One morning Mr. Mills, the butcher, had $10.00 in the money drawer. That evening there was $46.52 in the drawer. How much were the sales that day?

8. Dorothy has a package of paper containing 28 sheets. She wants to share it equally with her sister. How many sheets shall she give her sister?

9. My mother bought two big pumpkins at 18¢ each. How much did they both cost?

10. The gingham in Mary's new dress cost $1.56, and her mother paid $2.00 to have the dress made. What was the cost of the dress?

My Doll House *



My brother is building me a "dandy" doll house. My friend May said, "Oh! your doll house isn't so large as mine. Mine is 2 ft. long, 1 ft. wide, and $1\frac{1}{2}$ ft. high."

1. I got out the tape measure and measured mine. It is 24 in. long. Is May's house longer than mine?

2. Mine is 15 in. wide; so my house is ___ inches wider than May's.

3. My house is 20 in. high. Whose house is higher?

4. Is May's house larger than mine?

5. I had a letter from my aunt saying that she is sending me a doll a foot tall. My doll house has two stories. The first story is as high as the second. I wonder whether my new doll can stand up in my house. Do you know?

6. There are four rooms on each floor of my house; so I have ___ rooms all together.

7. There are three windows on each of the four sides of the house; so I must make ___ pairs of curtains.

Yes or No *

Read each question carefully. Then write on your paper the number of the question and the answer "Yes" or "No," whichever you think is correct.

1. Is one thousand fifty written like this: 1,005?

2. Does $0 + 4 = 4$?

3. Is $16 \div 2$ the same as $\frac{1}{2}$ of 16?

4. Does $9 \times 2 = 2 \times 9$?

5. Does \$8.00 = 7 dollars, 9 dimes, and 10 cents?

6. Do you add to find how much more Arthur weighs than Nell?

7. Does $10 \div 2 = 5$?

8. Are there 36 inches in a yard?

9. If a foot of wire is cut into halves, is each piece 6 inches long?

10. Is IV the Roman numeral for 6?

11. To check subtraction, do you add the number that is left to the number that is subtracted?

12. Is $3 + 2$ more than 3×2?

13. Is one hundred five dollars and five cents written like this: \$15.05?

14. Is 7,896 less than 7,982?

Are these examples correct?

15.
$$\begin{array}{r} 75 \\ \times\ 2 \\ \hline 140 \end{array}$$

16.
$$\begin{array}{r} 765 \\ 48 \\ 70 \\ 4 \\ \hline 887 \end{array}$$

17.
$$\begin{array}{r} \$10.00 \\ -\ 7.37 \\ \hline \$\ 3.63 \end{array}$$

18.
$$\begin{array}{r} \$56.09 \\ .90 \\ .03 \\ 40.00 \\ \hline 97.00 \end{array}$$

Progress Test No. 5

Write just the answers to these examples on your paper. Number each answer. (Record your score.)

1.	2.	3.	4.	5.	6.	7.
9	8	2	7	2	34	83
$\times 2$	$\times 2$	$\times 9$	$\times 2$	$\times 8$	$\times 2$	$\times 2$

8.	9.	10.	11.	12.	13.	14.
46	$2\overline{)18}$	$8\overline{)16}$	$9\overline{)18}$	$7\overline{)14}$	$2\overline{)86}$	$2\overline{)80}$
$\times 2$						

15. Does $\frac{1}{2}$ of 12 equal $12 \div 2$?

16. Add nine thousand, fifty-four dollars and sixty cents to one hundred seven dollars and eighty-nine cents.

17. There are 32 children in our room at school. Our teacher wants to order 2 pencils for each of us. How many pencils must she order?

18. I saw this sign, "Bargain: 4 cans of peas, 88¢." How much does each can of peas cost?

19. I have 46¢. How many 2-cent plums can I buy?

20. How much change will you get from a dollar if you spend forty-seven cents?

21. John weighs 105 lb. and May weighs 87 lb. John weighs ___ lb. more than May.

22. Mr. Smith owes the grocer $29.50 and the butcher $18.69. How much does he owe both?

Standards: X, 20. Y, 18. Z, 16.

Finding Out What You Know and What You Don't Know

TEST I. ADDITION AND SUBTRACTION

1. $7 + 5 + 6 + 3 = ?$
2. $286 + 475 = ?$
3. $\$5.32 - \$3.84 = ?$
4. $\$2.76 + \$3.98 + \$4.50 = ?$
5. 8 and 8 more are ?
6. 9 more than 7 is ?
7. 15 is ? more than 6.
8. $\$10.00 - \$7.68 = ?$
9. 7 is ? less than 12.
10. 13 less 8 is ?
11. 6 and 6 are ?
12. 9 from 16 is?

TEST II. MULTIPLICATION

1. $9 \times 2 = 2 \times ?$

2. $\begin{array}{r} 43 \\ \underline{\times\ 2} \end{array}$ 3. $\begin{array}{r} 84 \\ \underline{\times\ 2} \end{array}$ 4. $\begin{array}{r} 26 \\ \underline{\times\ 2} \end{array}$ 5. $\begin{array}{r} 75 \\ \underline{\times\ 2} \end{array}$

6. At 2¢ each, what is the cost of 8 rubber balls?

7. How much will 2 pairs of boys' socks cost if one pair costs 49¢?

TEST III. DIVISION

1. $\frac{1}{2}$ of 18 = ?
2. $16 \div 2 = ?$
3. $2\overline{)12}$
4. $2\overline{)68}$
5. $4\overline{)84}$

6. At 2¢ each, how many paper hats can I get for 24¢?

7. Is it true that to prove a division example you multiply your answer by the number you divided by to see if you get the number you divided?

TEST IV. NUMBERS—MEASUREMENTS

1. 1,256 may be read: "___ thousand, ___ hundred ___ ___," or "___ hundred ___ ___."

2. Write in words: 3,003; 3,303; 3,033.

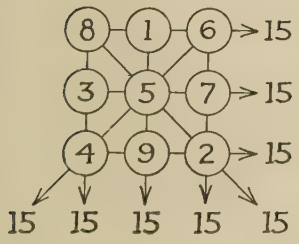
3. From 9:20 until 9:45 is ___ minutes.

The Practice You Need

If you made any mistakes in the tests on page 114, you need practice on examples like the ones you missed. This chart tells you where to find the practice you need.

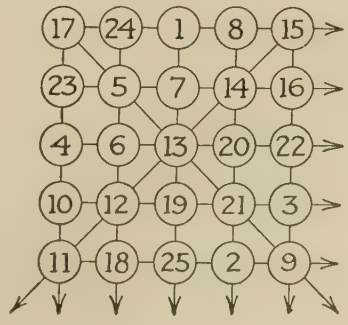
Test I	Test II	Test III	Test IV
1. p. 53	**1.** p. 93	**1.** p. 100	**1.** pp. 105 and 106
2. p. 61	**2.** p. 95	**2.** p. 100	**2.** p. 106
3. p. 77, Ex. 3	**3.** p. 95	**3.** p. 101	**3.** p. 66
4. p. 65	**4.** p. 97, Exs. (1)–(2)	**4.** p. 108	
5. p. 84	**5.** p. 97, Exs. (1)–(2)	**5.** p. 108	
6. p. 84	**6.** p. 94, Ex. 1	**6.** p. 103, Ex. 2	
7. p. 84	**7.** p. 97, Exs. (1)–(2)	**7.** p. 109	
8. p. 84			
9. p. 84			
10. p. 84			
11. p. 84			
12. p. 84			

Just for Fun



Here is a "magic square." Notice that all the columns and rows and diagonals add up to 15.

Here is a larger magic square. Would you like to see if all the columns and all the rows and both the diagonals add up to the same number?



CHAPTER VI

THE FIVES AND FOURS

The Circus

We are going to have a circus in our yard. Each child must pay 5¢ to come. How much money shall we take in if 2 children come? 3 children? 4? 5? 6? 7? 8? 9? 10?

5	5	5	5	5	5	5	5	5
5	5	5	5	5	5	5	5	5
Two 5's are 10	5	5	5	5	5	5	5	5
	Three 5's are 15	5	5	5	5	5	5	5
		Four 5's are 20	5	5	5	5	5	5
			Five 5's are 25	5	5	5	5	5
				Six 5's are 30	5	5	5	5
					Seven 5's are 35	5	5	5
						Eight 5's are 40	5	5
							Nine 5's are 45	5
								Ten 5's are 50

1. How many are 3 5's? 6 5's? 9 5's? 4 5's? 7 5's?

2. How many cents are there in 2 nickels? in 5 nickels? 8 nickels? 4 nickels? 3 nickels? 10 nickels?

3. At 5¢ each, find the cost of 6 oranges; 7 apples; 4 ice-cream cones; 9 chocolate bars; 8 balloons; 10 lollypops.

Learning the Table of Fives

FIRST MULTIPLICATION TABLE OF FIVES

5	5	5	5	5	5	5	5	5	5	5
0	1	2	3	4	5	6	7	8	9	10
0	5	10	15	20	25	30	35	40	45	50

1. Read the table above, beginning "Zero fives, zero; one five, five; two fives, ten;" and so on.

2. Practice these multiplications until you can say both rows forward and backward without looking at the table:

5	5	5	5	5	5	5	5	5	5	5
0	3	6	9	2	5	8	1	4	7	10

5	5	5	5	5	5	5	5	5	5	5
9	6	3	7	4	8	5	9	0	8	7

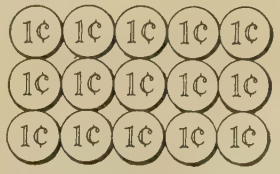
3. Mary wants to charge each child only 3¢ to come to the circus. What is 5×3? (Add this column.)

3
3
3
3
3
?

4. How much shall we take in if 3 children each pay 5¢? What is 3×5? Is 3×5 the same number as 5×3?

5	3
$\times 3$	$\times 5$
15	15

5. Here are 15 cents:
Can you see 3 5's?
Can you see 5 3's?



6. Copy and answer these. Keep on going, up to

10
$\times 5.$
50

5	1	5	2	5	3	5	4
$\times 1$	$\times 5$	$\times 2$	$\times 5$	$\times 3$	$\times 5$	$\times 4$	$\times 5$
5	5	10	10				

Multiplying by Five

SECOND MULTIPLICATION TABLE OF FIVES

0	1	2	3	4	5	6	7	8	9	10
5	5	5	5	5	5	5	5	5	5	5
0	5	10	15	20	25	30	35	40	45	50

1. Practice the following rows until you can say both of them forward and backward without looking at the table:

5	3	7	1	9	4	6	2	8	0	10
5	5	5	5	5	5	5	5	5	5	5

2	0	3	5	8	1	10	7	9	4	6
5	5	5	5	5	5	5	5	5	5	5

2. At 5¢ each, find the cost of:

4 pencils	1 cake	8 erasers	3 chocolate bars
5 apples	6 balls	9 whistles	7 oranges

3. We go to school 5 days every week. If I get a star every day for 2 weeks, I'll get ___ stars.

4. Nobody has been tardy in our room for 4 weeks. Four weeks are ___ school days.

5. Carfare to the park is 5¢. Eight of us got on the car, and my father handed the conductor ___ cents to pay for all of us.

6. I saw this in the newspaper one morning: "Do Your Christmas Shopping Early. Only Five Weeks until Christmas." One week = 7 days. Five weeks = ___ days.

7. How many cents have you if you have 3 nickels? 5 nickels? 6? 8? 7? 9?

A Page of Examples

1. Do each of these multiplication examples, and then add 2 to each answer. In the first example, think, "6 fives are 30, and 2 are 32."

5	5	8	9	5	2	6	2	5	3
6	7	5	5	6	8	2	9	4	5

2. Do each of the above multiplication examples again, adding 3 to each answer; adding 4 to each answer.

3. Add and check:

a	*b*	*c*	*d*	*e*	*f*	*g*
3	4	5	$4.04	7	3	45
6	8	6	.94	538	21	450
7	5	7	.05	0	4	540
9	7	8	.01	82	87	405
8	6	15	.66	467	584	504

4. Subtract and check:

a	*b*	*c*	*d*	*e*	*f*
784	408	349	400	307	633
692	278	76	146	9	150

5. Multiply and check by going over your work:

68	79	22	22	11	21
2	2	8	5	5	5

6. Divide and check:

2)86 2)64 2)28 5)55 3)63 4)84 8)88

7. Count by 5's to 50, beginning 0, 5, 10, · · ·

8. Count by 5's to 51, beginning 1, 6, 11, · · ·

9. Count: 3, 8, 13, · · ·, to 53; then 4, 9, 14, · · ·, to 54.

Multiplying Money

The day before Christmas, Bob's mother said to him: "Here is a dollar. Will you please go down to the store and get five holly wreaths?"

When Bob got to the store, he found there were two kinds of wreaths. The larger ones were marked $.27 each. The smaller ones were marked $.19 each.

Bob decided that he would get the larger ones if he had enough money. Can you multiply $.27 by 5? Bob wrote the example like this: ⟶

$$\begin{array}{r} \$.27 \\ 5 \\ \hline \end{array}$$

(1) He thought, "Five 7's are ___." He wrote the ___ under the 5 and 7 as shown in this box :⟶ and thought, "3 to carry."

$$\begin{array}{r} \$.27 \\ 5 \\ \hline 5 \end{array}$$

(2) Then he thought, "Five 2's are ___, and 3 to carry are ___." He wrote the 13 as shown here :➝

(3) Notice that Bob did not forget to put the dollar sign and cents point in the answer.

$$\begin{array}{r} \$.27 \\ 5 \\ \hline \$1.35 \end{array}$$

Had he enough money for the best wreaths?

Then he decided to get the $.19 wreaths if he had enough money. He wrote his example like this :➝

$$\begin{array}{r} \$.19 \\ 5 \\ \hline \end{array}$$

(4) He thought, "Five 9's are ___." He wrote the ___ and thought, "___ to carry."

(5) He thought, "Five 1's are ___, and ___ are ___." He wrote the ___.

(6) He did not forget to put the dollar sign and cents point in the answer.

$$\begin{array}{r} \$.19 \\ 5 \\ \hline \$.95 \end{array}$$

Had he enough money for five wreaths?

He took 5 of those 19-cent ones. What change did he get?

1. Can you find the cost of 5 wreaths at $.37 each?

2. If one red Christmas bell costs $.17, 5 will cost ___.

A Page of Practice

Multiply without copying: (Use folded paper.)

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
1.	\$.32	\$.35	\$.28	\$.22	\$.25	\$.64	\$.87	\$.39
	5	5	2	8	9	5	5	5
2.	52	12	34	56	25	78	51	89
	8	5	5	2	7	5	5	5
3.	25	23	52	82	88	46	78	52
	8	5	7	2	2	5	5	5
4.	\$.51	\$.83	\$.21	\$.25	\$.43	\$.65	\$.87	\$.98
	9	5	5	6	5	2	5	5

		a	*b*	*c*	*d*	*e*	*f*
5.	*Divide:*	2)84	2)64	2)48	5)55	4)84	9)99

6. Find $\frac{1}{2}$ of 64; $\frac{1}{2}$ of 84; $\frac{1}{2}$ of 24; $\frac{1}{2}$ of 28.

Add: (Oral.)

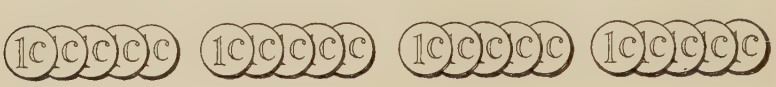
	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
7.	2	6	6	3	4	5	2	5	7	4
	49	54	48	28	49	56	48	18	54	48
8.	3	8	7	6	3	5	7	5	6	6
	49	27	63	45	18	27	48	35	64	28
9.	9	2	8	7	7	5	6	4	7	3
	43	18	36	24	45	36	56	28	27	48

10.	18 + ? = 24	7 + ? = 12	28 + ? = 30
11.	48 + ? = 53	28 + ? = 34	8 + ? = 13
12.	63 + ? = 71	9 + ? = 12	27 + ? = 35
13.	36 + ? = 44	27 + ? = 34	49 + ? = 51

Division by Five

I'm trying to see how many nickels I can save in my bank before Christmas. This morning I had 20 pennies. I went to the store and had them changed into nickels.

Guess how I found out how many nickels I should get.



I counted the pennies by 5's.

1. How many groups of 5 had I? How many 5's are there in 20? How many nickels did I get for the 20 pennies?

2. How many 5's are there in 10? in 25? in 30?

Remember that when you find out how many 5's there are in a number, you are dividing the number by 5.

3. Study the facts in the table below. Think, "Five is contained in 5, 1 time; 5 is contained in 10, 2 times;" and so on. Then close your book and see if you can write them all.

FIRST DIVISION TABLE OF FIVES

5)5	5)10	5)15	5)20	5)25	5)30	5)35	5)40	5)45	5)50
1	2	3	4	5	6	7	8	9	10

4. Try these divisions until you can say the rows forward and backward without looking at the table:

5)15	5)10	5)15	5)35	5)10	5)5	5)45	5)35
5)30	5)25	5)20	5)40	5)30	5)50	5)20	5)40
5)25	5)5	5)10	5)20	5)25	5)45	5)15	5)50

Division by Five

Second Division Table of Fives

1)5	2)10	3)15	4)20	5)25	6)30	7)35	8)40	9)45	10)50
5	5	5	5	5	5	5	5	5	5

	a	*b*	*c*	*d*	*e*
1.	$10 \div 2 = ?$	$20 \div 5 = ?$	5)10	5)35	3)15
2.	$30 \div 5 = ?$	$30 \div 6 = ?$	6)30	4)20	5)40
3.	$40 \div 8 = ?$	$15 \div 3 = ?$	9)45	5)45	2)10
4.	$20 \div 4 = ?$	$25 \div 5 = ?$	5)15	5)30	7)35
5.	$35 \div 7 = ?$	$45 \div 9 = ?$	5)25	8)40	5)20
6.	$40 \div 5 = ?$	$35 \div 5 = ?$	9)45	5)25	7)35

7.	**8.**	**9.**	**10.**
$9 \times 5 =$	$3 \times 5 =$	$4 \times 5 =$	$6 \times 5 =$
$5 \times 9 =$	$5 \times 3 =$	$5 \times 4 =$	$5 \times 6 =$
$45 \div 5 =$	$15 \div 5 =$	$20 \div 5 =$	$30 \div 5 =$
$45 \div 9 =$	$15 \div 3 =$	$20 \div 4 =$	$30 \div 6 =$
$7 \times 5 =$	$8 \times 5 =$	$2 \times 5 =$	$5 \times 1 =$
$5 \times 7 =$	$5 \times 8 =$	$5 \times 2 =$	$1 \times 5 =$
$35 \div 5 =$	$40 \div 5 =$	$10 \div 5 =$	$5 \div 5 =$
$35 \div 7 =$	$40 \div 8 =$	$10 \div 2 =$	$5 \div 1 =$

11. How many 5-cent pencils can you buy for 45¢?

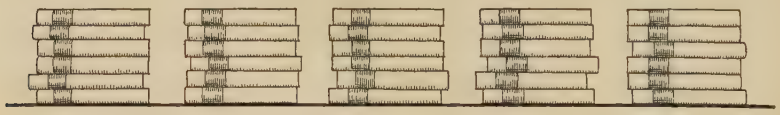
12. How many 9-cent pencils can you buy for 45¢?

13. If you get 6 bars of soap in a box for 30¢, how much are you paying for each bar of soap?

14. If you get 5 bars of soap in a box for 30¢, how much are you paying for each bar of soap?

One Fifth

If you divide anything into 5 equal parts, each part is called one fifth.



1. If you divide 30 books into 5 equal piles, each pile contains one fifth of the 30 books. How many books will there be in each pile? One fifth of 30 books is ___ books.

	a	*b*	*c*
2.	$\frac{1}{5}$ of 30 = ?	$5\overline{)30}$?	30 ÷ 5 = ?
3.	$\frac{1}{5}$ of 35 = ?	$5\overline{)35}$?	35 ÷ 5 = ?
4.	$\frac{1}{5}$ of 45 = ?	$5\overline{)45}$?	45 ÷ 5 = ?
5.	$\frac{1}{5}$ of 25 = ?	$5\overline{)25}$?	25 ÷ 5 = ?
6.	$\frac{1}{5}$ of 15 = ?	$5\overline{)15}$?	15 ÷ 5 = ?

To find $\frac{1}{5}$ of a number, divide the number by 5.

7. If 30 gumdrops are divided equally among 5 children, each child will get ___ gumdrops.

8. A quarter changed into nickels gives ___ nickels.

9. A quart of ice cream serves 5 persons. How many quarts shall we order for 10 persons?

10. Five of us went fishing. We caught 15 fish. Each of us took one fifth of the fish, or ___ fish.

How Fast Can You Go?

How many of these can you add correctly and check in 5 minutes? Use folded paper.

Remember a wrong answer is worse than no answer at all.

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	10	44	5	6	15	7	704
	856	86	39	88	90	6	97
	79	8	70	103	90	8	77
2.	$1.30	$.02	$.02	$1.20	$ .60	$10.87	$12.40
	.09	.09	.04	.04	.50	4.75	3.20
	.06	.09	.03	1.75	.40	9.60	.05

Can you subtract and check these in 5 minutes?

	a	*b*	*c*	*d*	*e*	*f*	*g*
3.	89	119	94	81	96	75	120
	55	87	59	55	69	46	46
4.	$1.75	$.66	$.10	$1.50	$9.80	$10.40	$3.00
	.98	.08	.07	.15	.90	.80	1.14

How many of these can you multiply in 4 minutes?

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
5.	55	87	96	48	52	52	25	25
	5	2	5	2	4	8	9	6
6.	67	67	17	15	98	93	52	83
	5	2	5	7	2	5	5	2

How many of these can you divide in 5 minutes?

7. 2)68 4)88 6)66 3)63 5)55 5)15 5)20 5)45

8. Find $\frac{1}{2}$ of 24; $\frac{1}{2}$ of 66; $\frac{1}{2}$ of 84; $\frac{1}{2}$ of 48.

An Easy Page

Ruth and Herbert each have a stamp book. One day their uncle sent them 246 stamps to share equally. Could you have found out how many stamps each should take? This is the way they did it.

(1) They wrote the example like this :——→

$$2\overline{)246}$$

(2) They thought, "2 is contained in 2 ___ time." They wrote the 1 below the 2 like this :——→

$$2\overline{)246}\quad 1$$

(3) They thought, "2 in 4, ___ times." They wrote the 2 below the 4 as is done in this box :——→

$$2\overline{)246}\quad 12$$

(4) They thought, "2 in 6, ___ times." They wrote the 3 below the 6 as shown in this box :——→

$$2\overline{)246}\quad 123$$

This shows that $246 \div 2 = 123$.

They then checked by finding whether $2 \times 123 = 246$. Does it? How many stamps should each take?

Divide, and check by multiplying:

	a	*b*	*c*	*d*	*e*
1.	$2\overline{)484}$	$4\overline{)488}$	$2\overline{)688}$	$4\overline{)844}$	$5\overline{)555}$
2.	$3\overline{)636}$	$4\overline{)884}$	$2\overline{)446}$	$2\overline{)664}$	$4\overline{)848}$

3. Find $\frac{1}{2}$ of 464; $\frac{1}{2}$ of 848; $\frac{1}{2}$ of 286; $\frac{1}{2}$ of 684.

4. I read in the paper that when the new hospital is finished there will be room for 248 patients. The paper says there is now room for only half that number. There must be room for ___ patients, now.

5. Herbert's teacher asked him to count out enough paper to give two sheets to each of the 34 children in the room. How many sheets of paper must he count out?

Packing Candy

Esther's father is a candy maker. Sometimes he lets her help pack the candy in boxes. Today she is packing peppermint drops in little boxes, putting 5 peppermints in a box. She has 305 peppermints to pack. What must she do to find out how many boxes she needs? Could you divide 305 by 5? This is the way Esther did it.

(1) She wrote the example like this: ⟶ 5)305

(2) She thought, "5 in 3, will not go. So I will think of the 3 and the 0 together as 30. 5 in 30, 6 times." She wrote the 6 under the 0 like this: ⟶

$$\begin{array}{r} 6 \\ 5\overline{)305} \end{array}$$

(3) She thought, "5 in 5, 1 time." She wrote the 1 under the 5 as shown in this box: ⟶

$$\begin{array}{r} 61 \\ 5\overline{)305} \end{array}$$

(4) She checked by finding whether $5 \times 61 = 305$. Does it? How many little boxes does she need?

1. In this example think, "5 in 2, will not go. 5 in 25, ___ times." Where do you write the 5? (Not under the 2.) Think, "5 in 5, ___ time." Where do you write the 1? What is the answer? Check by finding whether $5 \times$ ___ $= 255$.

$$\begin{array}{r} \\ 5\overline{)255} \end{array}$$

Do these divisions: (Cover the answers to the first row.)

	a	*b*	*c*	*d*	*e*	*f*
2.	$\begin{array}{r} 31 \\ 5\overline{)155} \end{array}$	$\begin{array}{r} 41 \\ 5\overline{)205} \end{array}$	$\begin{array}{r} 81 \\ 5\overline{)405} \end{array}$	$\begin{array}{r} 91 \\ 5\overline{)455} \end{array}$	$\begin{array}{r} 11 \\ 5\overline{)55} \end{array}$	$\begin{array}{r} 21 \\ 5\overline{)105} \end{array}$
3.	$2\overline{)128}$	$2\overline{)146}$	$2\overline{)488}$	$5\overline{)555}$	$2\overline{)686}$	$5\overline{)255}$
4.	$5\overline{)355}$	$2\overline{)188}$	$2\overline{)166}$	$3\overline{)156}$	$4\overline{)208}$	$6\overline{)306}$
5.	$8\overline{)408}$	$9\overline{)459}$	$7\overline{)357}$	$8\overline{)168}$	$9\overline{)189}$	$2\overline{)846}$

6. Find $\frac{1}{2}$ of 84; $\frac{1}{5}$ of 355; $\frac{1}{5}$ of 405; $\frac{1}{5}$ of 455.

Number Practice

1. At the county fair 405 prizes were awarded to school children. The prizes were divided equally among 5 schools. How many prizes did each school get?

2. We drove to Millville, which is 105 miles from home. When we had gone ___ miles, my father said we had gone one fifth of the distance.

3.

$1 \times 5 = 5$
$2 \times 5 = 10$
$3 \times 5 = 15$

Here are three multiplication facts about 5. Write the others up to $10 \times 5 = 50$.

4.

$5 \div 5 = 1$
$10 \div 5 = 2$
$15 \div 5 = 3$

Here are three division facts about 5. Write the others up to $50 \div 5 = 10$.

Can you give these answers in 3 minutes?

	a	*b*	*c*
5.	$5 \times 1 =$	$45 \div 9 =$	$18 \div 9 =$
6.	$9 \times 2 =$	$1 \times 5 =$	$40 \div 8 =$
7.	$35 \div 5 =$	$2 \times 9 =$	$9 \times 5 =$
8.	$5 \times 9 =$	$45 \div 5 =$	$8 \times 2 =$
9.	$2 \times 8 =$	$8 \times 5 =$	$18 \div 2 =$
10.	$30 \div 6 =$	$7 \times 2 =$	$5 \times 8 =$
11.	$7 \times 5 =$	$40 \div 5 =$	$2 \times 7 =$
12.	$6 \times 2 =$	$35 \div 7 =$	$5 \times 7 =$
13.	$6 \times 5 =$	$30 \div 5 =$	$2 \times 6 =$
14.	$4 \times 2 =$	$5 \times 6 =$	$25 \div 5 =$
15.	$5 \times 5 =$	$20 \div 5 =$	$\frac{1}{2}$ of $8 =$
16.	$\frac{1}{5}$ of $5 =$	$\frac{1}{5}$ of $15 =$	$4 \times 5 =$

Estimating Answers

Sometimes people want to estimate the answer to a problem instead of taking the time to work it out. This is the way they do it:

(1) If they are buying 4 books at $1.98 each, they think: $1.98 is about $2.00. Four books at $2.00 each would cost $8.00; so 4 books at $1.98 would cost about $8.00.

(2) If you want to buy 6 dolls at 49¢ each, you would think: 49¢ is about ___¢. Six dolls at 50¢ each would cost ___; so 6 dolls at 49¢ will cost about $3.00.

(3) If you have $1.82 and you are allowed to spend only half of it, you think: $1.82 is about $1.80. One half of $1.80 is ___¢; so one half of $1.82 is about ___¢.

At the end of each of the following problems there are three answers. No one of the answers is exactly correct, but one is almost correct. Tell which answer is almost correct and tell why you think so. Then work each problem to see if the answer is about the same as you thought it would be.

1. Edna would like to give each of 5 little friends a bottle of perfume for a Christmas gift. The perfume costs 29¢ a bottle. Will 5 bottles cost about $.50 or $1.50 or $2.50?

2. Florence wants a raincoat that costs $3.98 and an umbrella that costs $1.50. Will both of them cost about $4.00 or $5.00 or $5.50?

3. James and Billy found 162 nuts. When they divided them equally, did each one get about 80 nuts or 60 nuts or 90 nuts?

4. Mary has $9.96. If she buys a $7.98 doll carriage, will she have left about $3.00 or $2.00 or $1.00?

Estimating Answers*

1. If you buy a 29-cent book, a 98-cent knife, and a 19-cent writing pad, are you spending about $1.00, $1.50, or $2.00?

2. Elizabeth's father gave her 84¢ and sent her to the post office for 2-cent stamps. Can she get about 40 or 60 or 30 stamps?

3. If you buy a 49-cent ball and give the clerk a dollar, will your change be about 40¢ or 60¢ or 50¢?

4. If you buy a 28-cent game and give the clerk a half dollar, will your change be about 20¢ or 30¢ or 40¢?

5. Will the change from a dollar after a 68-cent purchase be about 40¢, 20¢, or 30¢?

6. If one yard of gingham costs 32¢, will 5 yards cost about $2.00, $1.00, or $1.50?

7. In 5 months are there about 120 days, 180 days, or 150 days?

8. Will the change from $5.00 after a $1.98 purchase be about $2.00, $3.00, or $4.00?

9. Will the change from $10.00 after a $4.97 purchase be about $6.00, $4.00, or $5.00?

10. If you buy a 49-cent collar and give the clerk a two-dollar bill, will your change be about $1.50, $1.40, or $1.60?

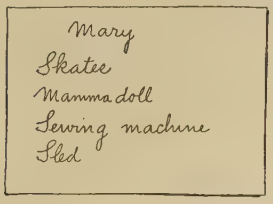
11. Will 8 pineapples at 19¢ each cost about 80¢, $1.60, or $3.00?

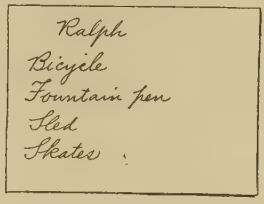
12. Will a $4.95 sled and a 49-cent pair of gloves cost about $6.00, $5.00, or $5.50?

13. In 139 days are there about 7 weeks, 20 weeks, or 40 weeks?

Christmas Lists

Mrs. Wolf told Mary and Ralph to make out lists of the things they wanted for Christmas. Here are the lists:





Mrs. Wolf priced the skates and found they cost \$3.69 a pair. Could you tell how she found out how much she would have to pay for skates for both of the children?

(1) She put down the example like this and thought, "Two 9's are ___." She wrote the 8.→

\$3.69
2
8

(2) She thought, "Two 6's are ___, and 1 to carry are ___." She wrote the 3 like this:→

\$3.69
2
38

(3) She thought, "Two 3's are 6, and 1 to carry are ___." She wrote the 7 this way:→

\$3.69
2
7 38

(4) She was not done yet. She still had to write the dollar sign and put in the cents point like this:→

\$3.69
2
\$7.38

(5) So $2 \times \$3.69 = \$7.38$. How much would two pairs of skates cost?

1. She also priced sleds. They were \$4.75 each. How much would sleds for both of the children cost?

2. Copy and multiply:

467	583	469	255	525	\$8.76	\$4.98
2	5	2	8	9	5	5

Using Money in Multiplication

Multiply:

1.	\$2.55 × 9	\$4.87 × 5	\$3.96 × 2	\$2.55 × 7	\$5.25 × 8	\$2.55 × 6
2.	\$2.55 × 4	\$2.55 × 3	\$5.52 × 8	\$5.22 × 3	\$5.25 × 6	\$5.22 × 9
3.	\$5.22 × 8	\$4.79 × 2	\$5.25 × 4	\$6.84 × 5	\$9.85 × 5	\$5.22 × 7

4. Find the cost of two pairs of woolen socks at \$2.19 a pair.

5. How much will 5 books cost at \$1.89 each?

6. What would you have to pay for 8 dolls at \$2.25 each?

7. What will the 9 suits for a boys' baseball team cost if one suit costs \$5.22?

8. Mrs. Jones has seven nephews. She wants to buy them each a \$2.55 sailboat for Christmas. How much would all the boats cost her?

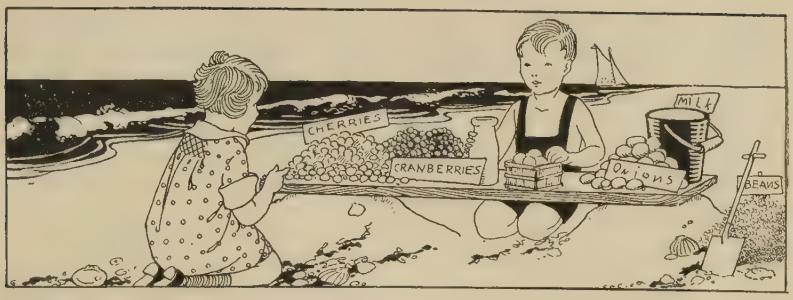
9. Bob and Bill each want a coaster that costs \$7.98. How much would both coasters cost?

10. Find the cost of a half-dozen hats at \$1.15 each.

11. If Mr. King buys each of his three boys a \$5.55 sweater, how much will he have to pay for them?

12. My carfare costs me \$1.25 a week. Can you tell how much it costs for four weeks?

13. How much change ought I to get from \$10.00 if I buy 5 books at \$1.75 each?



One day at the seashore we played store. We used red pebbles for cranberries, white pebbles for beans, red stones for cherries, white stones for onions, and sea water for milk.

We found a pint bottle for measuring milk, and a quart strawberry box for measuring cranberries, beans, cherries, and onions.

We knew that liquids are measured in pints, quarts, or gallons. Do you know how many pints there are in a quart?

We knew that vegetables and fruits are sometimes measured in pints, quarts, pecks, and bushels. This is called "dry measure."

Liquid Measure
2 pints (pt.) = 1 quart (qt.)
4 quarts (qt.) = 1 gallon (gal.)

Dry Measure
2 pints (pt.) = 1 quart (qt.)
8 quarts (qt.) = 1 peck (pk.)
4 pecks (pk.) = 1 bushel (bu.)

I was storekeeper. Can you tell how I measured out the following orders? (Remember that I had only a pint bottle for liquid measure and a quart box for dry measure.)

1. Mary asked for a quart of milk. (I measured out the milk by filling the pint bottle ___ times.)

2. Nan wanted a peck of beans. (I measured the beans by filling the quart box ___ times.)

3. Bob wanted a peck of onions and a gallon of milk.

4. I gave Jane a half gallon of milk.

5. Pete's order was a bushel of cherries.

6. Janet got a gallon of milk and a fourth of a peck of cranberries. (This was a hard one for me.)

7. Nan came back for 2 pecks of onions.

8. Bob came back for 3 quarts of milk.

9. When Mary asked for a quart and a half of milk, I gave her three pints. Was that the right amount?

10. Janet wanted two bushels of cherries, but I told her I hadn't time to measure all those. How many quarts of cherries should I have had to measure out?

Tell the numbers which belong in these blank spaces:

	a	*b*	*c*
11.	1 ft. =__ in.	1 qt. =__ pt.	9 nickels =__ ¢.
12.	2 qt. =__ pt.	2 ft. =__ in.	2 quarters =__ ¢.
13.	6 nickels =__¢.	5 qt. =__ pt.	5 dimes =__ ¢.
14.	½ ft. =__ in.	5 ft. =__ in.	2 nickels =__ ¢.
15.	2 gal. =__ qt.	1 yd. =__ ft.	1 gal. =__ qt.
16.	5 nickels =__ ¢.	½ qt. =__ pt.	2 yd. =__ ft.
17.	5 yd. =__ ft.	5 gal. =__ qt.	1 pk. =__ qt.
18.	2 pk. =__ qt.	1 yd. =__ in.	2 yd. =__ in.
19.	½ bu. =__ pk.	5 pk. =__ qt.	5 quarters =__ ¢.
20.	5 yd. =__ in.	1 bu. =__ pk.	8 nickels =__ ¢.

The School Party

We are going to give a school party this afternoon. We need tables for serving the ice cream. Some of the children will bring tables from home. Four children can sit at each table. How many children can sit at two tables? at 3 tables? at 4, 5, 6, 7, 8, 9, 10 tables? You can find out by adding these columns:

4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4
Two 4's are ?	4	4	4	4	4	4	4	4	4
Three 4's are ?	4	4	4	4	4	4	4	4	4
Four 4's are ?	4	4	4	4	4	4	4	4	4
Five 4's are ?	4	4	4	4	4	4	4	4	4
Six 4's are ?	4	4	4	4	4	4	4	4	4
Seven 4's are ?	4	4	4	4	4	4	4	4	4
Eight 4's are ?	4	4	4	4	4	4	4	4	4
Nine 4's are ?	4	4	4	4	4	4	4	4	4
Ten 4's are ?	4	4	4	4	4	4	4	4	4

1. How many are 6 4's? 3 4's? 9 4's? 7 4's? 8 4's?

First Multiplication Table of Fours

4	4	4	4	4	4	4	4	4	4	4
0	1	2	3	4	5	6	7	8	9	10
0	4	8	12	16	20	24	28	32	36	40

2. Practice these rows until you can say both of them forward and backward without looking at the table above:

4	4	4	4	4	4	4	4	4	4	4
3	1	5	8	9	7	2	6	4	10	0
4	4	4	4	4	4	4	4	4	4	4
1	10	7	4	0	9	6	3	8	5	2

Multiplying by Four

SECOND MULTIPLICATION TABLE OF FOURS

0	1	2	3	4	5	6	7	8	9	10
4	4	4	4	4	4	4	4	4	4	4
0	4	8	12	16	20	24	28	32	36	40

1. Practice these rows until you can say them forward and backward without looking at the table above:

0	2	4	6	8	10	9	7	5	3	1
4	4	4	4	4	4	4	4	4	4	4

5	4	6	3	7	2	8	1	9	0	10
4	4	4	4	4	4	4	4	4	4	4

2. Nine children each brought a table for the school party. So ___ pupils can sit at tables.

3. We have 7 other tables, each having room for 4 children. So ___ more children can sit at these tables. That will make ___ children in all that we can seat.

4. We ordered 2 gallons of ice cream. They sent us 8 quart boxes. Was that the amount we ordered?

5. We are to have four of the boxes of ice cream for our room. We had thought of dividing each of our 4 quarts into 8 parts. Would that be enough dishes of ice cream for the 35 children in our room? Will there be enough if we divide each quart into 9 parts? (Don't forget the teacher!)

6. Allowing 4 cookies for each person, we bought ___ cookies.

Just for Fun

Can you make a sensible sentence out of each of these?

1. gallon four equals quarts One.
2. bushel four are in There a pecks.
3. in a quarts eight are There peck.
4. bushel two One-half pecks equals.
5. pints equals quart two One.
6. feet three yard in are There a.
7. foot twelve One inches equals.
8. There thirty-six are yard in a inches.
9. bushel pk. means means and Bu. peck.

Using Fours

10. At 4¢ each, what is the cost of 4 pencils? 5 apples? 1 ball? 6 cakes? 2 pads? 9 erasers? 8 whistles? 3 puzzles? 7 tops? 2 thimbles?

11. Jean wants to make lace to sew around a handkerchief 9 inches square. How much lace should she make?

12. How many quarters can you get for a dollar? for 2 dollars? 6 dollars? 7 dollars? 9 dollars? 8 dollars?

13. Find the cost of 9 balls at 4¢ each.

14. Find the cost of 4 balls at 9¢ each.

15.

a.	*b.*	*c.*	*d.*	*e.*	*f.*
68	48	349	425	254	643
× 4	× 5	× 2	× 7	× 5	× 5

16. Count by 4's to 48, beginning 0, 4, 8, · · ·

17. Count by 4's to 49, beginning 1, 5, 9, · · ·

18. Count by 4's to 51, beginning 3, 7, 11, · · ·

19. Count by 5's to 62, beginning 2, 7, 12, · · ·

Playing Store *

Mary and Dorothy are "playing house." Bob and Ted run the "play store" where the girls do their shopping.

1. Mary bought 4 cans of corn at 18¢. Bob said, "Seventy-two cents, please." Was that right?

2. Mary gave him a dollar in toy money, and he gave her 28¢ change. Was that right?

3. Potatoes sold for $.45 a pk. Dorothy bought a bushel and had to pay ___ for them.

4. Vinegar was 8¢ a quart. Mary bought a gallon. How much did she have to pay for it?

5. Mary bought 4 yards of ribbon at 14¢ a yard. The ribbon cost her ___.

6. Bob said: "Here is a bargain. These oranges are worth 4¢ apiece. There are 27 in this box. I'll sell you the whole lot for $1.15." Dorothy said, "That is no bargain." Do you think it was?

Practice on these multiplications:

7.	25	54	55	44	98	76	83
	4	6	4	5	4	4	4
8.	212	259	387	245	452	524	425
	4	4	4	9	8	7	6

Dividing by Four

My mother gave me 20¢ and told me to go to the store for oranges. The sign on the pile of oranges was "4¢ each." I thought to myself, "How many oranges can I get for 20¢?" Can you tell?

(1) I thought, "I can get one orange for each 4¢ in the 20¢. 4¢ is contained in 20¢, 5 times. I can get 5 oranges."

(2) Twenty divided by four is five. $20 \div 4 = ?$

1. From the division table tell how many pencils at 4¢ each can be bought for 8¢, 12¢, 16¢, 20¢, 24¢, 28¢, 32¢, 36¢.

DIVISION TABLE OF FOURS

4)4	4)8	4)12	4)16	4)20	4)24	4)28	4)32	4)36	4)40
1	2	3	4	5	6	7	8	9	10
1)4	2)8	3)12	4)16	5)20	6)24	7)28	8)32	9)36	10)40
4	4	4	4	4	4	4	4	4	4

2. Practice the following rows until you can say them forward and backward without any mistakes:

4)4 4)16 4)32 4)8 4)24 4)12 4)28 4)20 4)36

4)8 4)24 4)36 4)4 4)32 4)12 4)16 4)28 4)20

3. If you divide a cooky into 4 equal parts, each part is called one ___ of the cooky.

4. If you divide 24 oranges into 4 equal piles, each pile contains one ___ of the oranges.

5. One fourth of 24 oranges is ___ oranges. $\frac{1}{4}$ of 24 is ?

To find $\frac{1}{4}$ of a number, divide the number by 4.

6. Find one fourth of each of these numbers:

48 84 128 364 248 204 364 288

One Quarter

If we divide an apple into 4 equal parts, we sometimes call each part one quarter of the apple instead of one fourth of the apple. "One quarter" and "one fourth" mean the same thing.

(1) One fourth of 8 equals ___.
One quarter of 8 equals ___.

(2) One quarter of 16 equals ___. What is one quarter of 32? of 24? of 36?

1. Is a quart a quarter of a gallon?

2. How many quarts are there in a peck?

3. How many quarts are there in a quarter of a peck?

4. How many inches are there in a yard?

5. How many inches are there in a quarter of a yard?

6. How many 25-cent pieces are there in a dollar?

7. Why do we call a 25-cent piece a quarter?

8. Add and check:

$$\begin{array}{r} 478 \\ 20 \\ 563 \\ \underline{207} \end{array}$$

9. Divide: $4\overline{)208}$

10. Multiply:

$$\begin{array}{r} 254 \\ \underline{8} \end{array}$$

11. Subtract and check:

$$\begin{array}{r} 1800 \\ \underline{367} \end{array}$$

	a	*b*	*c*
12.	$2 \times 8 = ?$	$5 \times ? = 40$	$? \times 6 = 24$
13.	$9 \times ? = 45$	$\frac{1}{2}$ of $20 = ?$	$\frac{1}{2}$ of $? = 9$
14.	$\frac{1}{4}$ of $36 = ?$	$12 \div 4 = ?$	$\frac{1}{4}$ of $16 = ?$
15.	$24 \div 4 = ?$	$7 \times ? = 35$	$5 \times ? = 20$
16.	$\frac{1}{5}$ of $40 = ?$	$\frac{1}{2}$ of $16 = ?$	$? \times 3 = 15$
17.	$9 \times ? = 36$	$18 \div 2 = ?$	$28 \div 7 = ?$

Problems Using Four

1. At $4 each, how many cameras can I buy for $8?

2. Thirty-six Boy Scouts are going to march 4 in a row; so there will be ___ rows of Scouts.

3. I had 88¢. My mother said, "You may spend one fourth of your money at the park and put the rest in your bank." I spent ___¢ and put ___¢ in my bank.

4. It takes ___ horseshoes to shoe a horse. How many horseshoes does the blacksmith need to shoe 24 horses?

Tell these answers as quickly as you can:

	a	*b*	*c*	*d*	*e*
5.	$24 \div 4 =$	$36 \div 9 =$	$28 \div 7 =$	$32 \div 8 =$	$20 \div 5 =$
6.	$24 \div 6 =$	$36 \div 4 =$	$28 \div 4 =$	$32 \div 4 =$	$20 \div 4 =$
7.	$6 \times 4 =$	$4 \times 9 =$	$7 \times 4 =$	$4 \times 8 =$	$4 \times 5 =$
8.	$4 \times 6 =$	$9 \times 4 =$	$4 \times 7 =$	$8 \times 4 =$	$5 \times 4 =$
9.	$24 + 6 =$	$36 + 9 =$	$28 + 7 =$	$32 + 8 =$	$20 + 5 =$
10.	$24 - 6 =$	$36 - 9 =$	$28 - 7 =$	$32 - 8 =$	$20 - 5 =$

11. Do these multiplications and subtract each answer from 26. $5 \times 5 =$; $6 \times 4 =$; $9 \times 2 =$; $4 \times 6 =$; $2 \times 9 =$.

12. Do these multiplications and subtract each answer from 37. $5 \times 7 =$; $4 \times 8 =$; $4 \times 9 =$; $8 \times 4 =$; $7 \times 5 =$.

13. Do these multiplications and subtract each answer from 46. $5 \times 9 =$; $5 \times 8 =$; $9 \times 5 =$; $8 \times 5 =$.

Do these multiplications, adding 1 to each answer:

	a	*b*	*c*	*d*	*e*
14.	$4 \times 6 =$	$7 \times 2 =$	$5 \times 4 =$	$9 \times 4 =$	$6 \times 4 =$
15.	$5 \times 8 =$	$4 \times 9 =$	$4 \times 8 =$	$7 \times 5 =$	$8 \times 4 =$
16.	$9 \times 2 =$	$7 \times 4 =$	$3 \times 5 =$	$4 \times 7 =$	$9 \times 5 =$

Left Overs

Rose, Peggy, Dorothy, and Grace went on a picnic. Each took one kind of food. This is what they took:

Rose	9 sandwiches
Peggy	8 little cakes
Dorothy	11 peaches
Grace	6 chocolate candies

1. Rose passed out 1 sandwich to each of the four girls. (Of course, she was one of the four.) She had ___ sandwiches left. She then passed out another sandwich to each of the four girls. Each girl then had ___ sandwiches. There was ___ sandwich left over.

2. Peggy had enough little cakes to give ___ to each of the four girls.

3. Dorothy had enough peaches to give ___ to each of the four girls and have ___ left over.

4. Grace had enough chocolate candies to give ___ candy to each of the four girls and have ___ left over.

5. Rose's mother gave her a dime to buy oranges on her way home from the picnic. She can get:

___ 2-cent oranges and have ___¢ left over,
or ___ 4-cent oranges and have ___¢ left over,
or ___ 5-cent oranges and have ___¢ left over.

Division with a Remainder

4 = one 3 and 1. ○○○ ○

5 = one 3 and 2. ○○○ ○○

6 = two 3's. ○○○ ○○○

7 = two 3's and 1. ○○○ ○○○ ○

8 = two 3's and 2. ○○○ ○○○ ○○

9 = ___ 3's. ○○○ ○○○ ○○○

10 = ___ 3's and ___. ○○○ ○○○ ○○○ ○

11 = ___ 3's and ___. ○○○ ○○○ ○○○ ○○

1. The last row of circles shows that there are ___ threes in 11, and ___ over. The 2 that is left over is called the *remainder*. What is the remainder when 7 is divided by 2? What is the remainder when 11 is divided by 5?

2. What are the remainders in these divisions?

3)4 3)5 3)6 3)7 3)8 3)9 3)10 3)11

We usually write the remainders in this way:

2)5	3)7	3)8	5)11	2)11	3)10	4)11
2 r1	2 r1	2 r2	2 r1	5 r1	3 r1	2 r3

The r stands for "remainder."

3. Read the above examples, beginning, "2 is contained in 5, 2 times and 1 over."

4. Can you do these divisions with the answers covered?

5)12	5)13	5)14	5)15	5)16	5)17	5)18
2 r2	2 r3	2 r4	3	3 r1	3 r2	3 r3

5. Tell the remainders in these examples:

4)9	4)10	4)13	4)16	4)19	4)21	4)25
2 r?	2 r?	3 r?	4 r?	4 r?	5 r?	6 r?

4)28	4)26	4)30	4)31	4)33	4)37	4)39
7 r?	6 r?	7 r?	7 r?	8 r?	9 r?	9 r?

Division Practice

Find the error in each of the first three rows:

1.	5)14	5)18	5)24	5)37	5)41	5)48	5)45
	2 r4	3 r3	4 r4	7 r2	8 r1	9 r4	9
2.	4)18	4)19	4)20	4)21	4)26	4)35	4)36
	4 r2	4 r3	4 r4	5 r1	6 r2	8 r3	9
3.	5)16	3)16	5)18	7)17	2)17	8)17	8)16
	3 r1	5 r1	3 r3	2 r4	8 r1	2 r1	2
4.	2)7	2)8	2)9	2)10	2)11	2)13	2)15
	? r?	? r?	? r?	? r?	? r?	? r?	? r?
5.	3)10	3)11	3)12	3)14	3)15	3)16	3)17
	? r?	? r?	? r?	? r?	? r?	? r?	? r?

Do these divisions orally:

6.	2)15	3)15	4)15	5)15	6)15	7)15	8)15	9)15
7.	2)17	3)17	4)17	5)17	6)17	7)17	8)17	9)17
8.	5)18	5)19	5)20	5)21	5)31	5)34	5)39	5)44
9.	6)6	6)10	6)12	6)13	6)14	6)15	6)16	6)17
10.	7)7	7)10	7)12	7)14	7)15	7)18	7)19	7)20
11.	8)8	8)10	8)11	8)12	8)13	8)14	8)15	8)16
12.	9)9	9)10	9)11	9)13	9)14	9)16	9)17	9)18

13. Divide each of these numbers by 2; by 4; 5:
5 7 9 12 15 18 19

14. Divide each of these numbers by 6; by 7; 8; 9:
12 13 14 15 16 17

How tall are you? How much do you weigh?

Division with Carrying

Roland and Joe shoveled the snow from the paths around Mrs. Brown's house yesterday. She gave them 70¢ and told them to divide it equally between them. See if you can divide 70 by 2. This is the way they did it:

(1) They wrote the example and thought, "2 in 7, 3 times and 1 over." They wrote the 3 like this :→

$$\begin{array}{r} 2\overline{)70} \\ 3 \end{array}$$

(2) They thought, "1 with 0 is 10; 2 in 10, 5 times," and wrote the 5 below the 0 as shown here :→

$$\begin{array}{r} 2\overline{)70} \\ 35 \end{array}$$

(3) They checked by finding whether $2 \times 35 = 70$. Does it? Each boy took ___¢.

Mr. Fox gave them 56¢. To find how much each should take, they wrote the example like this: 2)56

(1) They thought, "2 in 5, 2 times and 1 over." They wrote the 2 below the ___.

(2) They thought, "1 with 6 is ___; 2 in 16, ___ times."

(3) They wrote the 8 below the ___.

(4) Each boy took ___¢.

Divide: (Cover the answers to the first row.)

1.	$2\overline{)32}$ 16	$3\overline{)42}$ 14	$4\overline{)52}$ 13	$2\overline{)34}$ 17	$3\overline{)45}$ 15	$4\overline{)92}$ 23
2.	$2\overline{)52}$	$3\overline{)75}$	$4\overline{)56}$	$2\overline{)58}$	$4\overline{)96}$	$5\overline{)60}$
3.	$5\overline{)65}$	$2\overline{)94}$	$2\overline{)78}$	$7\overline{)84}$	$8\overline{)96}$	$6\overline{)84}$

4. I have 45¢. How many 3-cent pencils can I buy?

5. How many 2-cent stamps can you get for 50¢?

6. Mary paid 52¢ for 4 cakes of soap. The soap cost ___¢ a cake.

Division Practice

Can you find an error in each of these rows?

	a	*b*	*c*	*d*	*e*	*f*
1.	4)56	3)72	5)220	6)324	7)378	4)376
	14	24	44	56	54	94
2.	8)432	3)99	4)108	5)285	6)264	7)154
	54	33	27	57	46	22

Do these divisions:

3.	4)256	5)115	6)132	7)364	8)336	9)378
4.	3)165	9)468	8)432	4)184	5)220	6)312
5.	7)378	4)216	9)225	8)200	6)150	7)175
6.	5)260	6)270	7)287	8)416	9)135	4)376
7.	3)156	2)176	5)230	4)220	9)126	8)112
8.	2)190	3)174	4)292	5)370	6)324	7)154
9.	8)408	9)486	8)352	7)294	9)396	6)252

10. Find $\frac{1}{2}$ of 136; $\frac{1}{4}$ of 56; $\frac{1}{5}$ of 65; $\frac{1}{4}$ of 92.

Do these multiplications:

11.	189	275	876	245	542	542
	5	4	2	8	9	6
12.	542	768	984	975	452	542
	3	2	5	4	6	7
13.	542	452	254	254	694	489
	8	9	2	3	4	5
14.	425	245	452	425	524	245
	6	7	8	9	8	9

Keeping Score

Ben and Percy were playing a game of ringtoss. Every time the ring went on the stake it counted 5 points for the thrower. If the thrower failed to get the ring on the stake, he got 0 points. Each threw 6 times. Here are the points they made.

Throws	Ben	Percy
1st	5	0
2d	0	0
3d	5	0
4th	5	0
5th	0	0
6th	5	0

1. How many points did Ben make on his 1st throw? on his 2d throw? How many points had he made after his 2d throw? after his 3d throw? 4th throw? 5th throw? 6th throw?

2. How many points did Percy make on his 1st throw? on his 2d throw? What was his score after his 2d throw?

3. Two 0's = ?

4. What was Percy's score after his 3d throw? $3 \times 0 = ?$

5. What was his score after his 4th throw? $4 \times 0 = ?$

6. What was his score after his 5th throw? $5 \times 0 = ?$

7. What was his score after his 6th throw? $6 \times 0 = ?$

8. $7 \times 0 = ?$ $8 \times 0 = ?$ $9 \times 0 = ?$

Any number times zero equals zero.

What are the answers to these examples?

9.

$5 \times 0 = ?$	$6 \times 1 = ?$	$7 + 0 = ?$	$8 + 0 = ?$
$5 + 0 = ?$	$6 + 0 = ?$	$7 - 0 = ?$	$8 - 0 = ?$
$5 - 0 = ?$	$6 - 0 = ?$	$7 \times 0 = ?$	$8 \times 1 = ?$
$5 \times 1 = ?$	$6 \times 0 = ?$	$7 \times 1 = ?$	$8 \times 0 = ?$

Facts about Zero

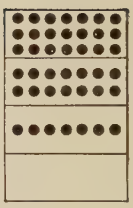
Look at these multiplications:

$3 \times 2 = 6$

$2 \times 2 = 4$

$1 \times 2 = 2$

$0 \times 2 = 0$

$3 \times 7 = 21$ 

$2 \times 7 = 14$

$1 \times 7 = 7$

$0 \times 7 = 0$

1. Write the answers to these:

1	2	3	4	5	6	7	8	9
$\times 0$	$\times 0$	$\times 0$	$\times 0$	$\times 0$	$\times 0$	$\times 0$	$\times 0$	$\times 0$

Zero times any number is zero.

2. Now be careful.

2	1	0	2	2	7	1	0	7
$\times 2$	$\times 2$	$\times 2$	$\times 1$	$\times 0$	$\times 1$	$\times 7$	$\times 7$	$\times 0$

Some Easy Review

Read:

1. 90,008 **3.** 9,080 **5.** 5,467 **7.** $6,972.70

2. 9,800 **4.** 980 **6.** 3,820 **8.** $6,007.07

	a	*b*	*c*
9.	$20 \div 7 =$ __ r__	$8\overline{)43}$	$7\overline{)30}$
10.	$25 \div 6 =$ __ r__	$8\overline{)20}$	$5\overline{)30}$
11.	$29 \div 4 =$ __ r__	$9\overline{)38}$	$4\overline{)30}$
12.	$9 + ? = 16$	$37 - 32 = ?$	$35 \div 7 = ?$
13.	$9 \times 5 = ?$	$49 - 45 = ?$	$36 \div 4 = ?$
14.	$18 \div ? = 2$	$\frac{1}{4}$ of $32 = ?$	$\frac{1}{5}$ of $30 = ?$
15.	$25 - 21 = ?$	$34 - 30 = ?$	$\frac{1}{2}$ of $14 = ?$

More about Zero

Ben and Percy were talking about zero. "I think I know why you have trouble remembering that $0 \times 7 = 0$," said Percy.

"Why?" asked Ben.

"You may be getting it mixed up with $0 + 7 = 7$. You must remember this:"

$7 + 0 = 7$	$0 + 7 = 7$
$7 \times 0 = 0$	$0 \times 7 = 0$

"I think that will help me remember," said Ben.

Dividing Zero

Three boys went out to the woods to get nuts. They agreed to divide them equally among them. They found no nuts. How many did each get? What is $\frac{1}{3}$ of no nuts? Then zero divided by 3 is zero. How many nuts would each have got if there had been 4 boys? 5 boys? 6 boys?

$0 \div 3 = 0$ $\quad 0 \div 4 = 0$ $\quad 0 \div 5 = 0$ $\quad 0 \div 6 = 0$

Zero divided by any number is zero.

Three Things to Remember

1. **Zero times any number equals zero.**
2. **Any number times zero equals zero.**
3. **Zero divided by any number equals zero.**

Read and answer as fast as you can:

1. $8 + 0 =$ $\quad \frac{1}{5}$ of $0 =$ $\quad 0 \times 2 =$ $\quad 3 \times 0 =$ $\quad \frac{1}{4}$ of $0 =$

$0 \div 5 =$ $\quad \frac{1}{8}$ of $0 =$ $\quad 0 + 0 =$ $\quad \frac{1}{2}$ of $0 =$ $\quad 9 - 0 =$

2.

10	10	10	10	10	10	10	10	10
$\times 1$	$\times 2$	$\times 3$	$\times 4$	$\times 5$	$\times 6$	$\times 7$	$\times 8$	$\times 9$

Numbers Ending in Zero

1. At 10¢ each, find the cost of a half-dozen wooden soldiers.

2. The favors Alice wants to give at her birthday party cost 80¢ a box. There are 8 favors in a box. How much would each favor cost?

3. An advertisement said, "Aprons 59¢ each; two for $1.00." If I buy two, each will cost only ___¢.

4. One store sells writing paper in packages, each containing 100 sheets. If I buy 9 packages, I'll get ___ sheets of paper, and that is as many as I need.

5. My mother bought a piece of gingham for 80¢. There are 4 yards in it; so that means she paid ___¢ a yard for it.

Do these multiplications as fast as you can: (The first three are done correctly as samples.)

	a	*b*	*c*	*d*	*e*	*f*	*g*
6.	20	20	20	20	20	20	20
	2	4	7	5	8	6	9
	40	80	140				
7.	200	300	400	600	800	500	900
	2	5	5	2	4	2	5

Explain the divisions that are done and then do the others:

8.	7)70	4)40	8)80	2)40	9)270	5)200	6)300
	10	10	10	20	30	40	50
9.	7)140	4)80	8)160	2)60	9)360	5)250	6)240
10.	2)600	2)800	9)900	5)500	2)400	7)700	3)600
11.	6)2400	7)3500	9)3600	4)2000	3)1200	2)1000	5)1000

The Thermometer

Milk is measured by the pint, quart, or ___.

In some places vegetables are measured by the pound; in other places they are measured by the quart, peck, or ___.

Tape is measured by the inch, foot, or ___.

Heat is measured by the *degree*. We use a *thermometer* to measure heat.

Here is the thermometer in our schoolroom. Do you see the little spaces on it? The liquid in the glass goes up one space whenever the room gets *2 degrees* warmer. We write *2 degrees* in this way: 2°.

The liquid in the glass goes down a space when the room gets 2° colder.

1. Show where the top of the liquid is, when the temperature of the room is 60°; when it is 62°; 64°; 66°; 68°; 70°; 72°; 76°; 80°; 84°.

2. At what season of the year does the thermometer sometimes read zero degrees?

3. One day my father said, "It was 2° below zero when I went out this morning." Is that colder or warmer than zero degrees?

4. One day when we went to school the thermometer in our room read 64°. It should be 68°. It was ___ degrees too cold.

5. We have a thermometer on our porch. Today at noon it read 56°, and at 6 o'clock this evening it read 42°. How much colder was it at 6 o'clock than at noon?

Troublesome Zeros

Some children have trouble with multiplication examples which contain zero. If you work hard on this page, you will not be like those children. Here are seven examples that are correct. Explain how each one is done.

1.

100	102	204	240	502	604	505
4	4	4	4	5	5	3
400	408	816	960	2510	3020	1515

2. Cover the answers to these examples and do each of them. Then look to see if your answers are correct.

200	204	304	340	402	705	660
3	2	5	5	5	5	4
600	408	1520	1700	2010	3525	2640

3. Copy and multiply:

300	304	580	204	350	507	404
4	3	5	9	4	5	6

4. Here are seven correct division examples. Can you explain each one?

4)400	2)204	4)480	5)1200	6)2406	8)1616	9)1836
100	102	120	240	401	202	204

5. Cover the answers to these examples and do each of them. Then look to see if your answers are correct.

4)800	4)408	5)1010	6)1224	4)2040	6)3030	8)4032
200	102	202	204	510	505	504

4)1224	6)1224	9)4536	7)3528	9)1836	4)3216	4)3620
306	204	504	504	204	804	905

6. Copy and divide, and be sure to check:

3)606 4)840 6)1224 7)1428 5)2550 9)4509 3)1512

Saving Money in Buying *

Ruth's mother asked her to find out the prices of some canned goods. Ruth went to three grocery stores, and then she made this price list for her mother.

Canned Goods	Palace Grocery	National Grocery	Eastern Grocery
Milk	$.20	$.17	$.19
Peas	.25	.19	.22
Peaches	.35	.26	.31
Tomatoes	.25	.19	.20
Pears	.30	.27	.29
Cherries	.34	.28	.32

1. Which grocery asked the highest prices? Which asked the lowest? If the goods at one store are as good as those in another, which is the best place to buy? Why?

2. What will be saved by buying a can of peas at the National Grocery instead of at the Palace Grocery?

3. If you have a dollar, can you buy a can of milk, a can of peas, a can of peaches, and a can of tomatoes at the National Grocery? at the Palace Grocery?

4. Find the cost of 5 cans of cherries at the Palace Grocery; at the National Grocery; at the Eastern Grocery.

5. Find the cost of 4 cans of pears at the Palace Grocery; at the National Grocery; at the Eastern Grocery.

6. Ruth's mother paid $.62 for two cans of peaches. Ruth said, "You bought those peaches at the ___ Grocery, didn't you?"

7. Four cans of tomatoes cost ___¢ more at the Palace Grocery than at the Eastern Grocery.

Your teacher may let you make up some store problems.

Some Arithmetic You Know

1. We have just finished Chapter VI in our Readers. The last chapter is Chapter XII. That means we have ___ more chapters to read.

2. Copy in a column, add, and check: 266, 42, 386, 90.

3. How much change do you get from a ten-dollar bill after buying a toy automobile for $8.98?

4. One fifth of 25 is ___; of 45 is ___; of 35 is ___.

5. One quarter of 36 is ___; of 24 is ___; of 12 is ___.

6. 1 yd. = ___ in.; 1 gal. = ___ qt.; 1 bu. = ___ pk.; 1 yd. = ___ ft.; 2 yd. = ___ in.; 3 gal. = ___ qt.

7. Divide and check:

4)488 4)336 4)96 4)800 3)603 5)550

8. Is the thermometer likely to read 8° or 80° outdoors on the Fourth of July?

9. If you buy a dozen oranges, a quart of milk, and a head of lettuce, will your bill be about 25¢ or $1.00 or $5.00?

10. Does the waste-paper basket in your schoolroom hold about a quart, about a bushel, or about 10 bushels?

11.

45	300	245	245	897	425	387
× 2	× 8	× 9	× 7	× 4	× 6	× 4

12. Count by 5's to 50, beginning 0, 5, 10, · · ·

13. Count by 4's to 40, beginning 0, 4, 8, · · ·

14. Tell all the multiplication facts about 5 from $1 \times 5 = 5$, up to $10 \times 5 = 50$.

15. Tell all the multiplication facts about 4 from $1 \times 4 = 4$, up to $10 \times 4 = 40$.

Progress Test No. 6

Write just the answers to these examples on your paper. Number each answer. (Record your score.)

Multiply:

1.	2.	3.	4.	5.	6.	7.
9	4	5	4	4	468	$2.28
5	9	8	0	7	2	5

Divide:

8.	9.	10.	11.	12.	13.	14.
7)35	2)268	4)368	5)250	5)105	9)108	8)96

15. $29 \div 7 =$ ___ and ___ r.

16. $0 + 5 =$ ___.

17. $0 \times 5 =$ ___.

18. $0 \div 5 =$ ___.

19. Our thermometer reads 34°. My mother says that I may go out to play if it gets up to 50°. The temperature will have to get ___ degrees higher before I may go out.

20. Divide 2436 by 6.

21. There are ___ pk. in a bushel.

22. There are ___ qt. in a gallon.

23. How much change should you get from a two-dollar bill after buying a pair of socks for 39¢?

24. Multiply 705 by 5.

Standards: X, 22. Y, 20. Z, 17.

CHAPTER VII

THE THREES AND SIXES

The Bell Dance

Some of us are having a Bell Dance on May Day. Each child needs 3 little bells for her ribbons. How many bells do we need for 1 child? 2 children? 3 children? 4 children? 5 children? 6 children? 7 children? 8 children? 9 children? 10 children?

How many feet of ribbon are there in 1 yd.? 2 yd.? 3 yd.? 4 yd.? 5 yd.? 6 yd.? 7 yd.? 8 yd.? 9 yd.?

3	3	3	3	3	3	3	3	3
3	3	3	3	3	3	3	3	3
Two 3's are ?	3	3	3	3	3	3	3	3
	Three 3's are ?	3	3	3	3	3	3	3
		Four 3's are ?	3	3	3	3	3	3
			Five 3's are ?	3	3	3	3	3
				Six 3's are ?	3	3	3	3
					Seven 3's are ?	3	3	3
						Eight 3's are ?	3	3
							Nine 3's are ?	3
								Ten 3's are ?

1. At 3¢ each, find the cost of 7 bells; 6; 9; 3; 5; 4; 8.

Multiplication Tables of Threes

3	3	3	3	3	3	3	3	3	3	3
0	1	2	3	4	5	6	7	8	9	10
0	3	6	9	12	15	18	21	24	27	30
0	1	2	3	4	5	6	7	8	9	10
3	3	3	3	3	3	3	3	3	3	3
0	3	6	9	12	15	18	21	24	27	30

1. With the help of the tables above can you give the answers to these?

a	*b*	*c*	*d*	*e*
$7 \times 3 =$	$9 \times 3 =$	$6 \times 3 =$	$0 \times 3 =$	$4 \times 3 =$
$3 \times 7 =$	$3 \times 9 =$	$3 \times 6 =$	$3 \times 0 =$	$3 \times 4 =$
$2 \times 3 =$	$1 \times 3 =$	$5 \times 3 =$	$8 \times 3 =$	$10 \times 3 =$
$3 \times 2 =$	$3 \times 1 =$	$3 \times 5 =$	$3 \times 8 =$	$3 \times 10 =$

2. Practice these multiplications until you can say them forward and backward without looking at the tables.

3	3	3	3	3	3	3	3	3	3	3
0	3	6	9	2	5	8	1	4	7	10
5	10	0	4	9	8	3	2	7	1	6
3	3	3	3	3	3	3	3	3	3	3

3. Ted measured with a yardstick and found that he needed 8 yd. of wire netting to make a pen for his chicks. His father told him he had a piece 25 ft. long. Would that be enough to make the pen? Will there be any netting left over?

Division by Three

Division Tables of Threes

3)3	3)6	3)9	3)12	3)15	3)18	3)21	3)24	3)27	3)30
1	2	3	4	5	6	7	8	9	10
1)3	2)6	3)9	4)12	5)15	6)18	7)21	8)24	9)27	10)30
3	3	3	3	3	3	3	3	3	3

1. Practice the following divisions until you can say both rows forward and backward without looking at the tables.

3)3 3)18 3)27 2)6 3)15 3)24 3)12 3)21 3)30 3)6

5)15 6)30 4)12 9)27 3)9 8)24 3)6 7)21 1)3 6)18

Can you tell the answers to these?

	a	*b*	*c*	*d*	*e*
2.	7×3 3×7	9×3 3×9	8×3 3×8	6×3 3×6	5×6 6×5
3.	$21 \div 7$ $21 \div 3$	$27 \div 9$ $27 \div 3$	$24 \div 8$ $24 \div 3$	$18 \div 3$ $18 \div 6$	$30 \div 6$ $30 \div 5$

Give the answers to these:

4.	$\frac{1}{3}$ of 6	$21 \div 7$	$\frac{1}{3}$ of 27	$\frac{1}{5}$ of 15
5.	$18 \div 6$	$\frac{1}{2}$ of 6	$0 \div 3$	$6 \div 3$
6.	9×2	$3 \div 3$	$\frac{1}{3}$ of 12	$18 \div 6$
7.	$\frac{1}{3}$ of 21	$\frac{1}{3}$ of 24	$15 \div 5$	$\frac{1}{4}$ of 12
8.	4×3	3×8	$\frac{1}{3}$ of 18	6×3

9.	1 qt. = __ pt.	12 ft. = __ yd.	2 gal. = __ qt.
10.	2 pt. = __ qt.	4 yd. = __ ft.	8 gal. = __ qt.
11.	14 pt. = __ qt.	8 yd. = __ ft.	36 qt. = __ gal.
12.	10 pt. = __ qt.	9 yd. = __ ft.	24 qt. = __ gal.
13.	20 pt. = __ qt.	21 ft. = __ yd.	16 qt. = __ gal.

A Page of Practice

Complete these divisions:

1.	5)19 3 r?	6)23 3 r?	7)26 3 r?	8)31 3 r?	9)35 3 r?	4)15 3 r?
2.	5)28 5 r?	6)35 5 r?	7)39 5 r?	8)47 5 r?	9)47 5 r?	4)23 5 r?
3.	3)14 4 r?	4)19 4 r?	5)24 4 r?	6)29 4 r?	7)33 4 r?	8)39 4 r?

Tell the quotients and the remainders in the following:

4.	3)5	3)8	3)11	3)14	3)20	3)26	3)27	3)28
5.	4)12	4)13	4)14	4)15	5)16	5)17	5)18	5)19
6.	6)18	6)20	6)23	7)22	7)24	7)27	8)25	8)26
7.	8)28	8)30	8)31	9)27	9)28	9)30	9)31	9)36

8. Copy and multiply: (Don't forget the dollar sign ($) and the cents point in the answers.)

$9.60 3	$8.76 3	$4.52 9	$3.54 8	$8.03 3	$7.02 3

Copy, divide, and check:

9.	3)369	3)72	3)255	3)288	3)264	3)900
10.	4)144	5)260	6)198	7)245	8)256	9)288
11.	8)336	7)308	6)312	8)264	5)215	4)800
12.	4)372	7)301	8)176	7)154	6)318	5)375

13. Find $\frac{1}{2}$ of 60; $\frac{1}{3}$ of 60; $\frac{1}{4}$ of 60; $\frac{1}{5}$ of 60.

A Page of Practice

	a	*b*	*c*
1.	$? \times 7 = 0$	$36 \div ? = 4$	$\frac{1}{5}$ of $20 = ?$
2.	$\frac{1}{3}$ of $? = 6$	$21 = 7 \times ?$	$7 = \frac{1}{2}$ of $?$
3.	$0 \times 9 = ?$	$35 \div 5 = ?$	$27 \div 9 = ?$
4.	$? \times 7 = 7$	$21 = ? \times 7$	$3 \times ? = 12$
5.	$4 \div ? = 1$	$24 \div ? = 8$	$\frac{1}{3}$ of $27 = ?$
6.	$? \div 9 = 0$	$\frac{1}{2}$ of $18 = ?$	$45 \div ? = 5$
7.	$0 \div 5 = ?$	$9 \times ? = 36$	$\frac{1}{3}$ of $? = 8$
8.	$0 \times 5 = ?$	$8 \times ? = 16$	$5 \times ? = 25$
9.	$4 \times 3 = ?$	$9 \times ? = 45$	$? \times 5 = 15$
10.	$9 \times 2 = ?$	$18 = ? \times 3$	$50 = ? \times 5$

	a	*b*	*c*	*d*	*e*
11.	531	208	1	45	674
	287	24	52	316	2
	614	765	689	25	35
	513	498	735	843	918
12.	735	969	89	888	66
	98	48	362	78	508
	324	903	84	690	870
	335	47	597	607	696
	676	865	876	500	777
13.	209	394	67	7	42
	430	85	705	98	300
	60	276	98	846	76
	21	67	56	544	507
	542	658	970	677	50
	387	49	709	899	986

Temperature Record: 10.00 A.M.
Monday 24°
Tuesday 16°
Wednesday 22°
Thursday 23°
Friday 18°
Do you write down the temperature every day at school?

Problems Using Threes

1. Jimmy was out in the woods and found 8 chestnut burrs. There were 3 chestnuts in each burr. How many chestnuts did he find?

2. My mother wanted to make a new curtain for the dining-room window. When my daddy measured the window, he said it was 5 feet high. Mother bought 2 yards of material. Was that enough for the curtain?

3. How many feet are there in a yard? 2 yards? 3 yards? 4 yards?

4. Last year, in the baby parade, there were four sets of triplets. The judge gave each of those babies a pink ribbon. How many ribbons did he need?

5. My mother said, "There are a dozen rolls in the bread box. Butter one third of them for your picnic lunch." How many rolls shall I butter?

6. One day, when I was in the store, a lady said to the grocer, "I bought a dozen eggs here this morning, and one fourth of them were bad." I thought, "___ of them must have been bad."

7. My two sisters and I went on a picnic. Mother gave us 18 sandwiches. That was ___ sandwiches apiece for the three of us.

8. I paid 27¢ for 9 oranges. I know how much I paid for each orange; do you?

9. Don, Ted, and I went crabbing last year at the seashore. All together we caught 48 crabs. We divided them among us equally, and each of us took ___ crabs home.

10. Have you ever seen a football field? It is 100 yards long between goal lines. How many feet is that?

Problems

1. There are 36 inches in a yard. My mother told me to make my doll's dress one third of a yard long. That means that I ought to make it ___ inches long.

2. There are 35 children in our room. We each have 3 books. How many books have we all together?

3. I made 24 gold-paper triangles to decorate our Christmas tree and pasted a gold star on each corner of the triangle. How many gold stars did I need?

4. Margaret is making the same kind of triangles for her tree. She has 63 gold stars. How many triangles can she make?

5. John's father bought him a tennis racket for $3.33, and two 33-cent balls. How much did he pay for the racket and the balls?

6. John's father handed the clerk a 5-dollar bill. How much change did he get?

Counting

7. Count by 3's to 30, beginning 0, 3, 6, · · ·

8. Count by 3's to 41, beginning 2, 5, 8, · · ·

9. Count by 3's to 43, beginning 1, 4, 7, · · ·

10. Count by 5's to 100, beginning 5, 10, · · ·

11. Count by 4's to 42, beginning 2, 6, 10, · · ·

12. Count by 5's to 53, beginning 3, 8, 13, · · ·

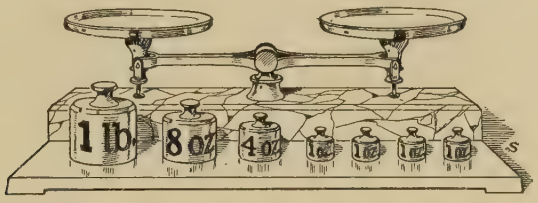
13. Count by 2's to 51, beginning 1, 3, 5, · · ·

14. Count by 5's to 49, beginning 4, 9, 14, · · ·

15. Count by 3's to 36, beginning 9, 12, · · ·

Our Sand-Box Store

Tom's father gave him the old pair of scales and weights shown here. He used them in playing store.



Do you know what 1 lb. means on the largest weight? It means that it is a 1-*pound* weight.

The 8 oz. on the next weight means that it is an 8-*ounce* weight. Each of the four small weights is a 1-ounce weight.

16 ounces = 1 pound.
***oz.* means ounce or ounces.**
***lb.* means pound or pounds.**

1. May asked for a pound of sugar. Which weight did Tom use to measure out the sugar?

2. Jean wanted a half pound of coffee. How many ounces are there in a pound? in a half pound? Which weight did Tom use to measure out the coffee?

3. Alice wanted a quarter of a pound of tea. How many ounces are there in a pound? in a quarter of a pound? Which weights did Tom use to measure out the tea?

4. Tom charged 48¢ a pound for coffee. How much did Jean pay for the half pound she bought from him?

5. He charged 80¢ a pound for tea. How much did Alice pay for the quarter of a pound of tea she bought?

A Subtraction Test

Subtract and check:

	a	*b*	*c*	*d*	*e*
1.	\$8.67	\$8.33	\$23.76	\$12.00	\$60.50
	4.32	6.66	16.84	8.98	39.49
2.	\$9.51	\$7.93	\$25.79	\$16.00	\$78.00
	2.48	6.74	14.86	15.75	1.95
3.	\$8.67	\$9.87	\$33.43	\$18.00	\$16.80
	3.99	8.99	18.15	.32	4.00

Practice in Multiplying

1. $0 \times 3 = 0$
   $1 \times 3 = 3$
   $2 \times 3 = 6$

   Here are three multiplication facts about three. Write the others in order up to $10 \times 3 = 30$.

2. $0 \div 3 = 0$
   $3 \div 3 = 1$
   $6 \div 3 = 2$

   Here are three division facts about three. Write the others in order up to $30 \div 3 = 10$.

Do these multiplications:

	a	*b*	*c*	*d*	*e*	*f*	*g*
3.	796	485	670	674	245	324	532
	3	4	5	2	8	9	7
4.	345	300	200	280	960	245	354
	6	5	4	2	3	6	7
5.	453	235	967	875	645	756	453
	8	9	3	4	2	5	9

Number Stories Told in Pictures

Read each problem. Then find which picture tells the same story that the problem does and tell why you think so.

1. If one orange costs 4¢, three oranges will cost ___. How does picture B tell this?

A

B

C

D

2. I had 12¢ and spent 8¢; so I have ___ left.

3. On Monday, Tuesday, and Wednesday I put 4¢ in my bank. In the three days I put ___ in my bank.

4. Mother divided 12¢ equally among us four boys. We each received ___.

5. I had 9¢ and I earned 3¢; so now I have ___.

6. Four girls bought 12¢ worth of candy. They divided the cost equally, each girl paying ___.

7. I have 9¢. Billy said, "I have 3¢ more than you." Billy must have ___.

8. I had 12 marbles, but I lost some and had only 9 left. How many did I lose?

9. If it takes 4 spools to make a toy wagon, how many spools will it take to make 3 toy wagons?

10. I have 8¢. I need ___ more to buy a 12-cent ball.

11. I want to share a dozen oranges equally among 4 boys. How many shall I give each?

12. Mother has 8 buttons, but she needs 12 for a new dress. How many more must I find for her?

The Calendar

Have you a calendar in your schoolroom with large numbers on it? If you haven't, be sure to get one before you start this lesson.

1. Christmas Day is December 25. Look on your calendar and find on what day of the week Christmas comes this year.

2. Thanksgiving Day is always the last Thursday in November. What day of the month is it this year?

3. What day of the week is the Fourth of July this year?

4. Can each of you find on what day of the week your birthday comes this year?

Columbus discovered America on October 12, 1492. October 12, 1492, is called the *date* of the discovery of America.

Notice that a date has three parts: *the month*, *the day of the month*, and *the year*.

5. Tell what date it is today. Name *the month*, *the day of the month*, and *the year*.

6. What *date* will it be a week from today? next Saturday? a week from next Saturday? a year from today?

7. Marie is sending a Christmas package to her aunt. She wants to mail it a week before Christmas, so that her aunt will get it in time. On what day of the month must she mail it? Don't look at the calendar. Just subtract.

8. Tommy is having a birthday party on April 12. He is going to give out his invitations a week ahead of time. On what day of the month will he give them out? On what day of the week will he give them out?

Some Work with Sixes

In our schoolroom there are 7 rows of seats. Six children sit in each row. (1) When the teacher wants to give a pencil to each of us, how many pencils does she need? Find out from the tables below.

(2) Tell how many pencils she would need if there were only 1 row; if there were 2 rows; 3; 4; 5; 6; 8; 9 rows.

1. At 6¢ each, what is the cost of 5 apples? 8 oranges? 7 pencils? 6 dolls? 9 paint books? 4 baskets?

Multiplication Tables of Sixes

6	6	6	6	6	6	6	6	6	6	6
0	1	2	3	4	5	6	7	8	9	10
0	6	12	18	24	30	36	42	48	54	60

0	1	2	3	4	5	6	7	8	9	10
6	6	6	6	6	6	6	6	6	6	6
0	6	12	18	24	30	36	42	48	54	60

2. Practice these rows until you can say both of them forward and backward without looking at the tables:

6	6	6	6	6	6	6	6	6	6	6
1	4	7	10	2	5	8	3	6	9	0

5	8	2	3	10	6	7	9	4	0	1
6	6	6	6	6	6	6	6	6	6	6

3.

$9 \times 6 =$	$6 \times 7 =$	$8 \times 6 =$	$0 \times 6 =$
$6 \times 9 =$	$7 \times 6 =$	$6 \times 8 =$	$6 \times 0 =$
$5 \times 6 =$	$4 \times 6 =$	$3 \times 6 =$	$2 \times 6 =$
$6 \times 5 =$	$6 \times 4 =$	$6 \times 3 =$	$6 \times 2 =$

Practice with the Sixes

Division Tables of Sixes

6)6	6)12	6)18	6)24	6)30	6)36	6)42	6)48	6)54	6)60
1	2	3	4	5	6	7	8	9	10
1)6	2)12	3)18	4)24	5)30	6)36	7)42	8)48	9)54	10)60
6	6	6	6	6	6	6	6	6	6

1. Practice these until you can answer them without help:

6)6 6)24 6)42 6)60 6)12 6)30 6)48 6)18 6)36 6)54

5)30 8)48 2)12 3)18 10)60 6)36 7)42 9)54 4)24 1)6

$12 \div 6 = ?$	$18 \div 6 = ?$	$30 \div 6 = ?$	$24 \div 6 = ?$
$12 \div 2 = ?$	$18 \div ? = 6$	$30 \div ? = 6$	$24 \div ? = 6$
$48 \div 6 = ?$	$54 \div 6 = ?$	$42 \div 6 = ?$	$0 \div 6 = ?$
$48 \div ? = 6$	$54 \div ? = 6$	$42 \div ? = 6$	$36 \div 6 = ?$

	a	*b*	*c*	*d*	*e*
2.	$9 \times 6 =$	$18 \div 3 =$	6)24	$\frac{1}{5}$ of $30 =$	$6 \times ? = 54$
3.	$3 \times 9 =$	$24 \div 4 =$	6)36	$\frac{1}{4}$ of $24 =$	$? \times 6 = 48$
4.	$2 \times 8 =$	$48 \div 6 =$	7)28	$\frac{1}{6}$ of $36 =$	$? \times 5 = 35$
5.	$5 \times 9 =$	$42 \div 7 =$	5)30	$\frac{1}{3}$ of $18 =$	$? \div 6 = 7$
6.	$7 \times 5 =$	$16 \div 4 =$	8)24	$\frac{1}{2}$ of $12 =$	$\frac{1}{6}$ of $? = 9$

	a	*b*	*c*
7.	$53 \div 6 =$ 5 and 5 over.	$55 \div 8 =$	$20 \div 3 =$
8.	$51 \div 8 =$ __ and __ over.	$52 \div 6 =$	$61 \div 9 =$
9.	$41 \div 6 =$ __ and __ over.	$50 \div 6 =$	$20 \div 6 =$
10.	$60 \div 9 =$ __ and __ over.	$40 \div 6 =$	$21 \div 6 =$
11.	$53 \div 8 =$ __ and __ over.	$62 \div 9 =$	$45 \div 6 =$

Problems Using Six

1. At 6¢ each, what is the cost of 1 apple? 8 oranges? 7 tops? 5 pencils? 9 horns? 6 puzzles? 3 balls? 4 dolls? 2 whistles? 10 balloons?

2. My father works 6 days a week and spends 7¢ a day for carfare. How much does his carfare cost each week?

3. On the outside of my sample tube of tooth paste it says, "Enough to clean your teeth six times." Since I clean my teeth three times a day, the tooth paste will last me ___ days.

4. The teacher told us to read 6 pages of a story last evening. It was a good story; so I read 18 pages. When I went to school this morning, I said, "I read ___ times as many pages as you told us to."

5. Jack is 6 years old. When he asked his grandfather how old he was, his grandfather said, "Little man, I've lived 9 times as many years as you have." His grandfather must be ___ years old.

6. I heard a lady ask for $\frac{1}{6}$ of a yard of velvet. The clerk gave her ___ inches.

7. Copy and multiply:

a	*b*	*c*	*d*	*e*	*f*
342	455	402	560	503	564
6	6	3	9	6	2

Copy and divide:

8.	6)606	6)246	6)600	8)880	6)546	6)480
9.	6)378	9)558	3)192	5)180	7)434	7)224

10. Find $\frac{1}{2}$ of 96; $\frac{1}{3}$ of 96; $\frac{1}{4}$ of 96; $\frac{1}{6}$ of 96.

11. Count by 6's to 60, beginning 6, 12, 18, • • •

Telling What You Think

1. Helen had 36¢. She wanted to buy some 4-cent oranges. In finding how many oranges to ask for, this is what she thought: I can buy one orange for each 4¢ in the 36¢; so I can buy as many oranges as there are 4's in 36, or ___ oranges.

2. Tell what you would think in finding how many 6-cent puzzles you could buy for 48¢.

3. A grocer advertised 6 cakes of laundry soap for 30¢. In finding how much she would be paying for one cake, this is what Mrs. Barnes thought: Since 6 cakes cost 30¢, one cake would cost only $\frac{1}{6}$ of 30¢, or ___¢.

4. Tell what you would think in finding the cost of one Christmas greeting card if you could get 8 in a box for 40¢.

5. Emily is making calendars for Christmas gifts. She needs 8 sheets of colored paper. Each sheet costs 2¢. In finding how much she will need for all the paper, she thinks: Since one sheet of paper costs 2¢, 8 sheets will cost 8 times 2¢, or ___¢.

6. Tell what Emily will think in finding out how much 8 little printed calendar pads will cost if each one costs 3¢.

7. Tell what Emily will think in finding how much the colored paper and calendar pads would both cost.

8. Tell what Emily will think in finding how much change she will have from a half dollar after buying the colored paper and calendar pads.

9. Tell what you would think in finding how many inches there are in one-fourth yard.

Our Fishing Trip *

1. Last Saturday my father took 5 of us boys on a fishing trip. We dug up worms for bait. Tom found 18 worms, Billy 14 worms, Ted 20 worms, Jack 15 worms, and I found 16. We told my father we had ___ worms, and he said that would be enough.

2. We went out to the lake on the street car. The fare is 6¢. My father had his hands full; so he told me to take ___¢ out of his pocket to pay the fare for all of us.

3. Tom caught 6 fish, Billy 5, Ted 3, and my father 7. I caught 4, and poor Jack didn't catch any. That was ___ fish we caught all together. What figure shows how many Jack caught?

4. Ten of the fish were too small for us to keep. We had to throw them back into the water. That meant that we had only ___ fish to take home.

5. My father told us that he didn't want any of the fish and that we boys were to divide them equally among us. We each took ___ fish.

6. We had a "dandy" lunch. There were 32 sandwiches. That was enough for ___ sandwiches apiece, and there were ___ left over. We fed those to a little brown dog that joined our fishing party.

Beware of the Zeros

	a	*b*	*c*	*d*	*e*
1.	$8 + 0 =$	$0 + 9 =$	$\frac{1}{7}$ of $0 =$	$5 - 0 =$	$6 + 0 =$
2.	$0 \div 8 =$	$9 \times 0 =$	$0 + 7 =$	$0 + 5 =$	$6 - 0 =$
3.	$0 \times 8 =$	$0 \div 9 =$	$7 - 0 =$	$0 \div 5 =$	$6 \times 0 =$
4.	$8 - 0 =$	$9 - 0 =$	$0 \times 7 =$	$0 \times 5 =$	$0 \div 6 =$

5. Copy in a column, add, and check: 504, 350, and 46.

6. Subtract 346 from 500. Check.

7. From 406 take 200. Check.

8. 405 is how much less than 434? Check.

9. 287 and what make 794? Check.

10. Do these multiplications:

a.	*b.*	*c.*	*d.*	*e.*	*f.*
630	603	506	509	500	964
$\times 9$	$\times 3$	$\times 6$	$\times 2$	$\times 4$	$\times 5$

These examples are all correct. Explain each one.

11.	$6\overline{)3624}$	$7\overline{)735}$	$5\overline{)515}$	$9\overline{)2070}$	$3\overline{)2709}$	$4\overline{)208}$
	604	105	103	230	903	52
12.	$8\overline{)3224}$	$3\overline{)927}$	$7\overline{)280}$	$6\overline{)3018}$	$4\overline{)2804}$	$8\overline{)4008}$
	403	309	40	503	701	501

13. Do these divisions:

$4\overline{)2416}$ $5\overline{)2005}$ $6\overline{)1806}$ $3\overline{)1230}$ $8\overline{)1640}$ $5\overline{)4025}$

14.

$0 \times 6 = 0$
$1 \times 6 = 6$
$2 \times 6 = 12$

Here are three multiplication facts about 6. Write the others in order up to $10 \times 6 = 60$.

15.

$6 \div 6 = 1$
$12 \div 6 = 2$
$18 \div 6 = 3$

Here are three division facts about 6. Write the others in order up to $60 \div 6 = 10$.

Problems with Two Steps *

1. Mary needs 2 lb. of sugar and a pint of milk to make some candy. Sugar is 9¢ a pound, and milk is 8¢ a pint. How much will the 2 lb. of sugar and the milk cost?

First step: 2 lb. of sugar will cost $2 \times 9¢$, or ___ cents.

Second step: The sugar and the milk will cost $18¢ + 8¢$, or ___ cents.

2. Bananas are 28¢ a dozen. Mary wants a half-dozen bananas and a 15-cent cake. How much will both cost?

First step: Since a dozen bananas cost 28¢, a half-dozen will cost one half of 28¢, or ___¢.

Second step: The bananas and cake together will cost $14¢ + 15¢$, or ___¢.

Tell each step in working these problems:

3. Eggs are 48¢ a dozen. Mother wants a half-dozen eggs and a 25-cent bottle of olives. How much will both cost?

4. Find the cost of a 25-cent box of talcum powder and 6 bars of soap at 9¢ a bar.

5. How much change will you get from a half dollar if you buy 7 toys at 6¢ apiece?

6. Matches cost 7¢ a box. Today the grocer is selling 5 boxes for 30¢. How much money can you save on the 5 boxes if you buy them today?

7. Marie's mother is going to make her a new dress. She bought 2 yards of cloth at 49¢ a yard and a pattern for 25¢. How much has she spent on the dress?

8. Harry earned 20¢ mowing the lawn and 18¢ selling papers. How much more does he need to buy a book that costs 50¢?

Review

1. Read these numbers: 5,000; 5,505; 5,005; 5,500; 5,055.

2. Write in figures:

Eight thousand, seventy-four.

Two thousand, seven hundred six.

3. Multiply each of these numbers by 2:

7 3 1 5 0 4 2 6 9 8

4. Multiply each number above by 3; by 4; by 5; by 6.

5. On what day of the week is the tenth of this month?

6. The date of next Tuesday is · · ·

7. If the liquid in the thermometer falls from 72° to 58°, does it get warmer or colder? How much?

8.

1 lb. = _ oz.	$\frac{1}{2}$ doz. = _.	1 gal. = _ qt.
$\frac{1}{2}$ lb. = _ oz.	$\frac{1}{4}$ doz. = _.	1 yd. = _ ft.
$\frac{1}{4}$ lb. = _ oz.	$\frac{1}{3}$ doz. = _.	1 week = _ days.

9. Ham is 64¢ a pound. Jane bought one-half pound of ham and a 24-cent can of peas. How much did both cost?

10. 6 is what part of a dozen?

11. A pint is what part of a quart?

12. A foot is what part of a yard?

13. A nickel is what part of a quarter?

14. A quart is what part of a gallon?

15. 57 ÷ 9 = _ and _ over.

16. 53 ÷ 8 = _ and _ over.

17. 45 ÷ 7 = _ and _ over.

18. 37 ÷ 5 = _ and _ over.

19. Copy and divide:

a	*b*	*c*	*d*	*e*	*f*
6)606	6)132	8)4008	5)520	4)804	4)800

Progress Test No. 7

Write just the answers to these examples on your paper. Number each answer. (Record your score.)

Multiply:

1.	2.	3.	4.	5.	6.
3	6	6	640	564	$5.03
9	9	7	9	3	6

Divide:

7.	8.	9.	10.
7)21	5)18	3)23	8)28

11.	12.	13.	14.
9)60	6)606	7)434	6)480

15. How much change will you get from a quarter after buying 4 bars of soap at 6¢ a bar?

16. $\frac{1}{6}$ of 36 = ____.

17. There are ____ oz. in one-half pound.

18. Write in figures: three thousand, seventy-seven.

19. Our baker charges 6¢ a loaf for bread. Last week we used 14 loaves. Our bill was ____ ¢.

20. For 50¢ I can buy ____ 6-cent apples and have ____ ¢ left over.

21. Multiply 607 by 5.

22. Divide 2454 by 6.

Standards: X, 20. Y, 18. Z, 15.

Finding Out What You Know and What You Don't Know

TEST I. ADDITION

			4. 567		
		3. 495	98		
	2. 854	386	49		6. $5.07
1. 305	376	79	675	5. $4.00	8.09
694	298	876	84	3.94	.05
837	563	95	99	2.77	.24

TEST II. SUBTRACTION

1.	2.	3.	4.	5.	6.	7.	8.
579	76	537	630	$.65	$3.49	800	$17.95
255	29	78	295	.17	1.79	247	16.39

TEST III. MULTIPLICATION

1.	2.	3.	4.	5.	6.	7.
43	43	625	200	605	640	$7.75
2	5	9	9	6	8	6

TEST IV. DIVISION

1.	2.	3.	4.	5.	6.
2)48	2)106	4)884	6)27	3)45	2)600

7.	8.	9.	10.
4)480	6)2436	$\frac{1}{2}$ of 12 =	$\frac{1}{5}$ of 25 =

TEST V. MEASURES

1. ___ oz. = 1 lb.
2. ___ oz. = $\frac{1}{2}$ lb.
3. ___ qt. = 1 gal.
4. ___ qt. = 1 pk.
5. ___ pk. = 1 bu.
6. ___ in. = 1 yd.

1. What will be the date a year from tomorrow?

2. 42° is ___ degrees less than 56°.

3. Write $4,256.95 in words.

4. Write the two ways in which each of these numbers may be read: 9,876; 8,002.

5. 980 means ___ hundreds, ___ tens, and ___ ones.

The Practice You Need

If you made any mistakes in the tests you have just done, you need practice on examples like the ones you missed. This table tells you where to find that practice.

TEST I	TEST II	TEST III	TEST IV	TEST V	TEST VI
1. p. 160	**1.** p. 38, Exs. 3–4	**1.** p. 95	**1.** p. 108	**1.** p. 163	**1.** p. 166
2. p. 160	**2.** p. 86, Ex. 1	**2.** p. 121, Exs. 1–4	**2.** p. 127	**2.** p. 163	**2.** p. 151
3. p. 160	**3.** p. 86, Ex. 2	**3.** p. 131	**3.** p. 126	**3.** p. 133	**3.** p. 106
4. p. 160	**4.** p. 86, Ex. 3	**4.** p. 150, Ex. 7	**4.** p. 144	**4.** p. 133	**4.** p. 105
5. p. 81, Ex. 6	**5.** p. 86, Ex. 4	**5.** p. 152, Exs. 1–3	**5.** p. 145	**5.** p. 133	**5.** p. 31
6. p. 81, Ex. 6	**6.** p. 86, Ex. 5	**6.** p. 152, Exs. 1–3	**6.** p. 150, Exs. 10–11	**6.** p. 13	
	7. p. 86, Ex. 6	**7.** p. 131	**7.** p. 150		
	8. p. 164, Exs. 1–3		**8.** p. 152, Exs. 4–6		
			9. p. 100		
			10. p. 124		

Just for Fun. What has 3 feet and can't walk?

CHAPTER VIII

THE SEVENS, EIGHTS, AND NINES

Learning the Sevens

1. I learned to swim at Lake George last summer. I was there 4 weeks, and went in swimming once every day. Can you tell how many times I went in swimming?

2. Tell how many times I could have gone in swimming if I had been there 1 week; 2; 3; 5; 6; 7; 8; 9 weeks.

3. Read the following tables, beginning: "Zero sevens, zero; one seven, seven; two sevens, fourteen;" and so on.

MULTIPLICATION TABLES OF SEVENS

7	7	7	7	7	7	7	7	7	7	7
0	1	2	3	4	5	6	7	8	9	10
0	7	14	21	28	35	42	49	56	63	70
0	1	2	3	4	5	6	7	8	9	10
7	7	7	7	7	7	7	7	7	7	7
0	7	14	21	28	35	42	49	56	63	70

	a	*b*	*c*	*d*	*e*
4.	$9 \times 7 =$	$8 \times 7 =$	$6 \times 7 =$	$5 \times 7 =$	$4 \times 7 =$
5.	$7 \times 9 =$	$7 \times 8 =$	$7 \times 6 =$	$7 \times 5 =$	$7 \times 4 =$

6. Practice these multiplications until you can say both rows forward and backward without looking at the tables:

7	7	7	7	7	7	7	7	7	7	7
5	4	10	2	9	1	7	3	8	6	0
4	1	3	7	2	0	6	5	9	10	8
7	7	7	7	7	7	7	7	7	7	7

Practice with Sevens

Division Tables of Sevens

7)7	7)14	7)21	7)28	7)35	7)42	7)49	7)56	7)63	7)70
1	2	3	4	5	6	7	8	9	10
1)7	2)14	3)21	4)28	5)35	6)42	7)49	8)56	9)63	10)70
7	7	7	7	7	7	7	7	7	7

1. Practice these rows forward and backward until you are sure that you know every fact:

7)7	7)14	7)35	7)56	7)28	7)49	7)70	7)21	7)42	7)63
1	2	5	8	4	7	10	3	6	9
1)7	10)70	4)28	7)49	8)56	3)21	5)35	6)42	9)63	2)14
7	7	7	7	7	7	7	7	7	7

	a	*b*	*c*	*d*	*e*
2.	$9\times7=$	$7\times6=$	$7\times2=$	$7\times3=$	$7\times7=$
3.	$56\div7=$	$49\div7=$	$0\times7=$	$56\div8=$	$5\times7=$
4.	$7\times5=$	$3\times7=$	$35\div7=$	$28\div7=$	$42\div7=$
5.	$28\div4=$	$56\div8=$	$42\div6=$	$9\times7=$	$63\div9=$

6. Count by 5's to 50.

7. Count by 4's to 40.

8. Count by 7's to 70.

9. Count by 6's to 60.

10. Can you do the addition tests on pages 19 and 20 in 4 minutes today?

11. Try to take the subtraction tests on pages 45 and 46 in 4 minutes.

12. Carfare in our town is 7¢. My mother paid the fare for 9 of us to go to the park. It cost her ___ cents.

13. Our baker charges 7¢ a loaf for bread. Last week we used 14 loaves. Our bill was ___ cents.

Using Facts You Know

1.	$42 \div 7 = ?$	$7 \times 6 = ?$	$7 \times ? = 35$	$\frac{1}{6}$ of $48 = ?$
2.	$40 \div 8 = ?$	$5 \times 9 = ?$	$32 \div 8 = ?$	$\frac{1}{5}$ of $35 = ?$
3.	$7 \times 7 = ?$	$5 \times 8 = ?$	$4 \times 8 = ?$	$\frac{1}{3}$ of $27 = ?$
4.	$\frac{1}{5}$ of $45 = ?$	$9 \times 7 = ?$	$6 \times 6 = ?$	$\frac{1}{7}$ of $63 = ?$
5.	$\frac{1}{7}$ of $56 = ?$	$9 \times 3 = ?$	$7 \times 4 = ?$	$\frac{1}{7}$ of $49 = ?$
6.	$\frac{1}{6}$ of $54 = ?$	$9 \times 6 = ?$	$6 \times 5 = ?$	$\frac{1}{4}$ of $28 = ?$

	a	*b*	*c*
7.	$32 \div 7 =$ __ and __ over.	$60 \div 8 =$	$55 \div 7 =$
8.	$12 \div 7 =$ __ and __ over.	$33 \div 7 =$	$62 \div 8 =$
9.	$31 \div 4 =$ __ and __ over.	$71 \div 9 =$	$43 \div 6 =$
10.	$60 \div 7 =$ __ and __ over.	$34 \div 7 =$	$54 \div 7 =$
11.	$62 \div 7 =$ __ and __ over.	$11 \div 7 =$	$41 \div 7 =$

12. $616 + 849 + 658 + 613 =$

13. From 807 subtract 389.

14. $586 + 20 + 8 =$

15. Take 87 from 450.

16. Copy and multiply: (Be sure to check.)

6527	9876	5642	4006	5050	804
4	7	8	7	7	5

17. Copy and divide: (Be sure to check.)

7)7287 6)1260 9)3663 3)810 4)2040 7)5649

18.

$0 \times 7 = 0$
$1 \times 7 = 7$
$2 \times 7 = 14$

Here are three multiplication facts about 7. Write the others in order up to $10 \times 7 = 70$.

19.

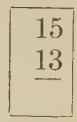
$0 \div 7 = 0$
$7 \div 7 = 1$
$14 \div 7 = 2$

Here are three division facts about 7. Write the others in order up to $70 \div 7 = 10$.

Harder Multiplication *

1. Our Sunday school class wants to earn some money; so we made Easter eggs and are selling them for 15¢ apiece. I have sold 7, and when I counted my money I found I had $1.05. Is that as much as I should have?

2. Kathryn has sold 13 eggs. She has $1.95. She is not sure whether that is what she should have. Could you show her how to multiply 15 by 13 to find out? This is the way to do it:

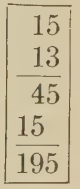


(1) Write the example as shown in the first box.

(2) Multiply the 15 by the 3 of the 13. $3 \times 15 = ?$ Write the 45 like this: ——→

(3) Multiply 15 by the 1 of the 13. Write the 15.→

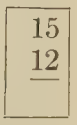
(4) Add the 45 and 15 as written, like this: ——→



(5) Remembering that the answer is money, write the dollar sign and cents point. The answer is $1.95.

Has Kathryn as much money as she should have?

3. Dorothy has sold 12 eggs. How much should she have?



(1) Write the example like this: ——→

(2) Multiply the 15 by ___. Where do you write the 30?

(3) Multiply the 15 by ___. Where do you write the 15?

(4) Adding, what do you find the answer to be? *Don't forget the dollar sign and the cents point.*

4. Can you multiply 15 by 13 without looking at the work above?

5. What would 16 notebooks cost at 15¢ each?

6. Find the cost of a dozen linen handkerchiefs at 25¢ each.

Practice in Multiplying *

Multiply and check: (Cover the work and answers to the first row.)

	a	*b*	*c*	*d*	*e*	*f*	*g*
1.	59	75	31	47	77	94	67
	27	32	88	47	45	53	63
	413	150	248	329	385	282	201
	1 18	2 25	2 48	1 88	3 08	4 70	4 02
	1,593	2,400	2,728	2,209	3,465	4,982	4,221
2.	57	77	98	69	83	65	77
	12	13	23	24	32	29	77
3.	48	86	75	65	54	83	97
	27	67	39	19	18	17	16

4. My mother bought 12 packs of paper napkins for our Sunday school picnic. There are 25 napkins in each pack. She said, "I have ___ napkins, and I'm sure that will be enough."

5. Mother paid 18¢ a pack for the napkins. How much did they all cost?

6. There are 12 paper plates in a package. Mother bought 27 packages of those. How many plates did she get?

7. The plates cost 15¢ a package; so she had to pay ___ for the plates.

8. The plates and the napkins together cost ___.

9. She also bought 16 boxes of paper cups. There are 24 cups in a box. How many cups did she get?

10. The cups cost 16¢ a box. They cost ___ in all.

11. The napkins, plates, and cups together cost ___.

A Surprise

Here is a surprise for you. You have only *four* more multiplication facts and *four* more division facts to learn. Learn them as quickly as possible.

8	8	9	9
8	9	8	9
64	72	72	81

8)64	8)72	9)72	9)81
8	9	8	9

1. Count by 8's to 80, beginning 8, 16, 24, · · ·

2. Count by 9's to 90, beginning 9, 18, 27, · · ·

3. $0 \times 8 = 0$, $1 \times 8 = 8$, $2 \times 8 = 16$ — Here are the first three multiplication facts about 8. Write the others up to $10 \times 8 = 80$.

4. $0 \times 9 = 0$, $1 \times 9 = 9$, $2 \times 9 = 18$ — Here are the first three multiplication facts about 9. Write the others up to $10 \times 9 = 90$.

5. $0 \div 8 = 0$, $8 \div 8 = 1$, $16 \div 8 = 2$ — These are the first three division facts about 8. Write the others up to $80 \div 8 = 10$.

6. $0 \div 9 = 0$, $9 \div 9 = 1$, $18 \div 9 = 2$ — These are the first three division facts about 9. Write the others up to $90 \div 9 = 10$.

7. Make the multiplication and division tables of eights and nines like the ones for seven on pages 178 and 179.

8. Answer quickly:

$9 \times 9 =$	$\frac{1}{8}$ of $64 =$	$63 \div 9 =$	$45 \div 5 =$	$48 \div 6 =$
$8 \times 9 =$	$72 \div 9 =$	$54 \div 9 =$	$40 \div 5 =$	$56 \div 8 =$

Division Practice *

1. Divide each of the numbers in rows (1) to (8) by 7.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
(1)	41	12	29	7	44	38	20	42
(2)	54	39	46	53	10	52	43	21
(3)	55	18	9	45	27	66	15	50
(4)	13	47	57	17	32	25	24	49
(5)	19	62	28	11	22	61	51	60
(6)	40	8	56	36	68	37	69	70
(7)	63	30	64	67	16	26	59	33
(8)	31	65	14	35	23	48	58	34

2. Divide each of the numbers in rows (1) to (8) by 8.

3. Divide each of the numbers in rows (1) to (8) by 9.

Do these divisions:

	a	*b*	*c*	*d*	*e*	*f*
4.	8)80	8)71	8)78	8)72	8)77	8)74
5.	9)71	9)85	9)77	9)73	9)81	9)80
6.	9)87	9)72	9)76	9)82	9)74	9)79
7.	9)78	8)73	9)83	8)75	9)75	8)77

8. Find $\frac{1}{9}$ of 189; $\frac{1}{8}$ of 176; $\frac{1}{9}$ of 738; $\frac{1}{8}$ of 736.

9. Find $\frac{1}{9}$ of 837; $\frac{1}{8}$ of 664; $\frac{1}{9}$ of 747; $\frac{1}{8}$ of 744.

Practice with Eights and Nines

1. At 8¢ each what is the cost of 7 dolls? 8 pencils? 5 puzzles? 6 books? 4 horns? 9 tin soldiers? 3 pads?

2. At 9¢ each what is the cost of 7 boats? 8 tops? 5 balls? 6 rulers? 4 popguns? 9 cars? 3 wagons?

3. At 8¢ each how many pencils can you buy for 40¢? 56¢? 64¢? 72¢? 48¢? 80¢?

4. At 9¢ each how many soap-bubble pipes can you buy for 63¢? 45¢? 27¢? 54¢? 72¢? 81¢? 36¢?

5. We picked 3 pecks of cranberries yesterday. We are going to sell them by the quart. How many quarts have we to sell?

6. If we sold them at 9¢ a quart, how much money would we get for our cranberries?

7. We gathered trailing pine in the woods before Christmas and made wreaths. I made 11 wreaths and sold them for 8¢ each. How much money did I make?

8. My brother made 9 wreaths and sold them for 9¢ each. How much money did he make?

9. I said to my brother, "I made ___¢ more than you."

10. My father bought an 8-pound turkey for Christmas. It cost 65¢ a pound; so he had to pay ___ for the turkey.

11. Find the cost of 9 chocolate cakes at 8¢ each and a 19-cent box of cocoa.

12. Find the cost of a half pound of cookies that cost 38¢ a pound, and a 12-cent box of gelatine.

13. How much change will you get from a half dollar if you buy 8 ice-cream cones at 5¢ each?

A Page of Practice

Explain each of the examples in the first row, and then do the others, checking each example.

1.	8)968	4)896	9)1449	6)1290	5)1350
	121	224	161	215	270
2.	7)798	6)846	5)1355	3)7869	8)6472
3.	6)966	5)955	9)3069	8)7256	4)4968
4.	7)847	6)786	8)1624	9)8181	9)8280
5.	8)896	4)928	9)5679	8)8352	4)8760
6.	7)784	3)579	9)1089	4)4920	8)4960

Subtract and check:

7. \$25 − \$17.84
8. \$16 − \$9.56
9. \$15.34 − \$8
10. \$175 − \$1.75
11. \$165 − \$2.85
12. \$1650 − \$162.52
13. \$1480 − \$256.50
14. \$2580.25 − \$2000
15. \$5000 − \$675.25
16. \$8000 − \$584.75

Find:

17.	$\frac{1}{2}$ of 198	$\frac{1}{3}$ of 261	$\frac{1}{8}$ of 656	$\frac{1}{9}$ of 648
18.	$\frac{1}{6}$ of 564	$\frac{1}{5}$ of 245	$\frac{1}{4}$ of 340	$\frac{1}{7}$ of 588
19.	$\frac{1}{8}$ of 432	$\frac{1}{2}$ of 564	$\frac{1}{9}$ of 846	$\frac{1}{3}$ of 108
20.	$\frac{1}{4}$ of 416	$\frac{1}{6}$ of 636	$\frac{1}{7}$ of 756	$\frac{1}{5}$ of 360

Add and check:

21. \$24.50 + \$39.72 + \$152.63 + \$246.80
22. \$200 + \$5000 + \$25.75 + \$75.25
23. \$575 + \$289 + \$354 + \$789 + \$175.50
24. \$234 + \$17 + \$29 + \$248 + \$75.95

"Watch Your Step!"

	a	*b*	*c*
1.	$9 + 7 = 2 \times ?$	$21 \div 7 = ? \div 3$	$90 - 9 = 9 \times ?$
2.	$8 + ? = 3 \times 5$	$49 + 5 = ? \times 9$	$16 - 9 = 49 \div ?$
3.	$9 \times 8 = 8 \times ?$	$37 + ? = 6 \times 7$	$9 \times 9 = 73 + ?$

	a	*b*	*c*	*d*
4.	$32 \div 9 =$ __ and __ over.	$34 \div 9 =$	$60 \div 8 =$	$73 \div 8 =$
5.	$15 \div 8 =$ __ and __ over.	$12 \div 9 =$	$20 \div 9 =$	$74 \div 9 =$
6.	$17 \div 9 =$ __ and __ over.	$21 \div 8 =$	$31 \div 8 =$	$85 \div 9 =$
7.	$13 \div 8 =$ __ and __ over.	$51 \div 8 =$	$71 \div 9 =$	$50 \div 9 =$
8.	$41 \div 9 =$ __ and __ over.	$51 \div 9 =$	$65 \div 8 =$	$53 \div 8 =$

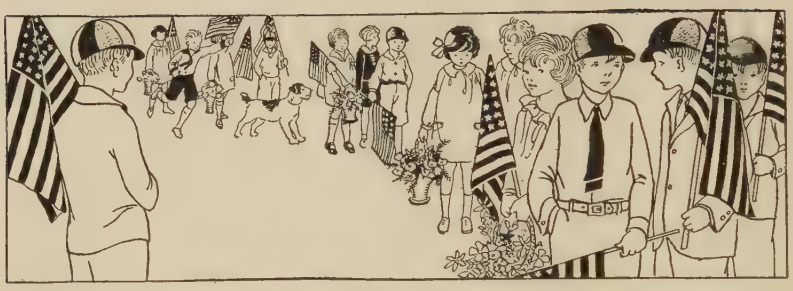
In some of these divisions you must carry twice. Explain each division in the first row. Then cover the answers and do them. Do the others, checking each example.

9.	4)3424 856	3)1137 379	5)1160 232	6)3990 665	8)5176 647	9)5823 647
10.	4)1700	9)1908	8)3400	7)4340	4)3632	4)2756
11.	5)2345	7)5082	7)1456	8)2040	8)6408	9)6381
12.	9)2997	8)5600	6)4998	9)1917	6)5538	8)4040

Multiply and check:

13.	980 9	899 8	988 9	909 8	809 9	789 8
14.	890 5	9980 4	605 8	407 8	750 9	7650 8
15.	98 89	76 67	49 85	79 83	92 28	96 98

The Big Parade *



All the school children in our town are going to march in a parade on Memorial Day. The first thing our principal did when he heard about it was to find out how many children from our building would be in the parade. He sent the following slips around, and each teacher filled in the number of boys and the number of girls from her room who would march.

First Floor

	BOYS	GIRLS
Room I	18	14
Room II	17	12
Room III	19	20
Room IV	11	18
Room V	13	19
Room VI	16	16
Total		

Second Floor

	BOYS	GIRLS
Room I	16	14
Room II	14	19
Room III	15	20
Room IV	17	17
Room V	16	18
Room VI	19	13
Total		

1. How many boys from the first floor will march in the parade? How many girls from the first floor? How many children from the first floor?

2. How many boys from the second floor will march in the parade? How many girls? How many children in all?

3. Each child is to carry a flag. How many flags will be needed? Have you checked all the additions, to make sure the answers are right?

4. In the storeroom the principal found 31 bundles of flags, each bundle containing 8 flags. How many flags did he find?

5. Has he enough flags? If not, how many more does he need?

6. When he orders the extra flags, he must order them by the bundle, each bundle containing 8 flags. The company will not sell a part of a bundle. How many bundles must he buy?

7. If he buys that number of bundles, how many flags will he get? Will he need all those flags? How many will he have left over?

8. Each of the boys is going to wear a red, white, and blue paper cap. How many caps will be needed?

9. If the caps come in boxes, each box containing 6 caps, how many boxes of caps must be bought? You cannot buy a part of a box; so if you need part of a box, you should order another whole box.

10. Each girl is going to carry a flower basket. How many baskets will be needed?

11. The baskets come in boxes, each box containing 6 baskets. How many boxes of the baskets must be ordered? Remember that you cannot buy a part of a box.

Estimating Answers *

1. Teddy wants a ball that costs 49¢ and a bat that costs 98¢. He thought: The ball costs about 50 cents and the bat costs about ___; so both will cost about ___.

2. It takes 3 yards of gingham to make Alice a dress. The gingham Alice wants costs 28¢ a yard. Alice thought: 28¢ is about ___; so 3 yards will cost about ___.

3. Alice would like to have a silk dress. The silk she wants costs 98¢ a yard. About how much would the silk for her dress cost?

4. Tom earned $3.03 this week. If he buys the cap that he wants for $1.99, about how much will he have left?

5. Jean earned 53¢ last week. She would like to earn a half dollar this week. If she does, she will have about ___ all together.

6. There are 29 children in our schoolroom. We each need 2 sheets of paper for the baskets we are making. The teacher said, "I'll order about ___ sheets of paper for all of you."

7. Work each of the above problems and tell the exact answer to each.

8. About how tall is your teacher?

9. About how long is your teacher's desk?

10. About how long is a new pencil?

11. About how heavy is your arithmetic book?

12. Is there anything in your schoolroom that would hold about 2 qt.?

13. Choose two objects that are about 100 ft. apart.

Test on Multiplication Facts

Write the answers to these examples on folded paper. If you have an error in any row, do the examples in that row until you get every one correct.

1.	9 × 8	7 × 7	9 × 9	9 × 5	7 × 6	8 × 3	9 × 7
2.	9 × 1	5 × 4	6 × 6	6 × 7	8 × 6	9 × 2	5 × 3
3.	8 × 7	8 × 1	8 × 4	6 × 3	7 × 4	0 × 8	7 × 1
4.	6 × 1	5 × 9	7 × 3	8 × 9	9 × 3	1 × 8	4 × 3
5.	1 × 5	5 × 6	8 × 5	7 × 8	6 × 4	7 × 9	7 × 5
6.	0 × 2	4 × 9	5 × 7	3 × 5	5 × 8	2 × 3	4 × 7
7.	0 × 3	6 × 5	1 × 9	1 × 6	1 × 3	3 × 9	4 × 4

Test on Multiplication Facts

Write the answers to these examples on folded paper. If you have an error in any row, do all the examples in that row until you get every one correct.

1.	6 × 8	5 × 1	2 × 8	5 × 5	2 × 7	1 × 4	4 × 8
2.	4 × 1	9 × 6	4 × 2	3 × 0	0 × 7	4 × 6	0 × 5
3.	2 × 1	3 × 2	0 × 6	0 × 4	1 × 1	5 × 2	0 × 1
4.	9 × 4	2 × 5	8 × 2	8 × 8	6 × 0	3 × 7	3 × 1
5.	4 × 5	3 × 3	6 × 9	2 × 9	1 × 2	2 × 4	0 × 10
6.	9 × 0	3 × 8	8 × 0	1 × 7	2 × 2	3 × 4	5 × 0
7.	7 × 9	7 × 0	2 × 6	0 × 9	7 × 2	3 × 6	6 × 2

Test on Division Facts

Write the answers to these examples on folded paper. If you have an error in any row, do the examples in that row until you get every one correct.

1.	5)30	2)18	1)4	5)25	3)0	7)35
2.	1)3	5)35	3)3	9)81	7)42	8)8
3.	3)6	2)16	5)40	7)49	1)2	8)16
4.	2)14	3)9	7)56	5)45	9)72	6)0
5.	1)1	7)63	3)12	5)15	4)20	7)7
6.	8)56	2)12	5)10	4)24	7)0	9)54
7.	2)10	5)5	4)28	6)54	9)45	6)18
8.	4)4	6)12	8)24	4)16	7)28	1)5

Test on Division Facts

Write the answers to these examples on folded paper. If you have an error in any row, do the examples in that row until you get every one correct.

1.	5)0	4)32	6)48	9)36	6)24	1)6
2.	4)36	6)42	9)27	6)30	2)8	4)0
3.	6)36	2)6	1)7	9)18	1)8	8)72
4.	4)8	9)0	6)6	8)32	2)0	3)24
5.	8)0	4)12	3)15	8)40	1)9	3)27
6.	9)9	7)21	3)18	8)48	3)21	2)4
7.	7)14	5)20	2)2	1)0	8)64	9)63

Filling May Baskets

1. Doris has 43 daisies to put in May baskets. She wonders how many daisies she can put in each of 3 baskets. Can you show her how she can divide to find out? This is the way to do it.

$$3\overline{)43}\quad 14\ \text{r}1$$

2. Explain each step of that division. How many daisies can she put in each basket? How many daisies will be left over?

3. If Doris fills 4 May baskets, this is the way to divide to find out how many daisies she can put in each basket. Explain each step of the division. How many daisies can she put in each basket? How many daisies will be left over?

$$4\overline{)43}\quad 10\ \text{r}3$$

4. She also has 31 rosebuds. If she makes three baskets, how many rosebuds can she put in each basket? How many will be left over?

5. How many peonies could she put in each of 3 baskets and how many would she have left over if she had 46 peonies? 53 peonies? 62? 38? 76?

6. How many pieces of fern could be put in each of 5 baskets and how many would she have left over, if she had 51 pieces? 52 pieces? 53? 54? 55? 56?

Divide:

7. $5\overline{)73}$ $6\overline{)85}$ $7\overline{)158}$ $8\overline{)179}$ $9\overline{)299}$ $6\overline{)259}$ $8\overline{)363}$

8. $5\overline{)95}$ $9\overline{)565}$ $8\overline{)573}$ $7\overline{)560}$ $5\overline{)87}$ $3\overline{)89}$ $6\overline{)563}$

Division Practice

Do these divisions: (Work by rows, not by columns.)

	a	*b*	*c*	*d*	*e*	*f*
1.	4)118	4)119	4)120	4)121	4)122	4)123
2.	9)718	9)719	9)720	9)721	9)722	9)723
3.	8)478	8)479	8)480	8)481	8)482	8)483
4.	6)418	6)419	6)420	6)421	6)422	6)423
5.	5)453	5)452	5)451	5)450	5)449	5)448
6.	7)563	7)562	7)561	7)560	7)559	7)558

	a	*b*	*c*	*d*
7.	6)12	6)120	6)1201	6)12018
8.	7)14	7)140	7)1405	7)14056
9.	8)24	8)240	8)2404	8)24048
10.	9)36	9)360	9)3605	9)36054
11.	5)25	5)250	5)2504	5)25040
12.	4)36	4)360	4)3602	4)36028
13.	9)81	9)810	9)8107	9)81072
14.	8)64	9)631	7)4956	4)28020
15.	5)25	6)360	8)6472	9)72081
16.	8)45	7)525	8)4564	9)76032

Playing with Paper Dolls *

1. Rita and her little friends are going to play with paper dolls this morning. Her mother says that Rita may buy 2 sheets of paper dolls at 5¢ a sheet, and a pair of scissors that costs a quarter. How much money does Rita need?

2. How much change will Rita get if her mother gives her a half dollar to buy the dolls and scissors?

3. Emily wants to buy 3 sheets of paper dolls at 5¢ apiece, and 2 paper-doll houses at 4¢ apiece. How much money does she need?

4. Grace wants 3 little paper chairs that cost 3¢ each, a paper bed and a paper table that cost 7¢ each. How much does she need for these things?

5. Rita has 45 paper dolls that she cut out of magazines. She is going to buy 2 sheets of paper dolls, and each sheet has 4 dolls on it. How many will she have all together then?

6. Jane had 54 paper dolls, but she sorted them out and threw away 18 that were not very pretty. She has 15 new ones to cut out, however, and then she'll have ___ dolls.

Clock Questions *

1. How many minutes does it take the minute hand to go from 12 to 1? from 12 to 3?

2. How many minutes are there in an hour? in a half hour? in a quarter of an hour? in three quarters of an hour?

3. How many hours does it take the hour hand to go from 12 to 1? from 12 to 6? 12 to 9? 12 to 12? from 3 to 9? from 10 to 2? from 8 to 4? from 4 A.M. to 6 P.M.?

4. How many times will the hour hand go around the clock from noon today until midnight? How many times will it go around from midnight until tomorrow noon?

5. How many hours is it from noon today until noon tomorrow? from 7 A.M. today until 7 A.M. tomorrow? from 10 P.M. today until 10 P.M. tomorrow?

6. The doctor put a bandage on Ted's finger last Tuesday at 10 : 30 A.M. and told him to keep it on for 24 hours. When was Ted allowed to take off the bandage?

7. Dorothy's mother told her that she might go over to Ann's house to play for half an hour. It was 4 : 25 P.M. when she went. When must she come home?

8. Dick must practice on his violin for three quarters of an hour. He started at 7 : 10 P.M. When may he stop?

9. How many minutes is it from

(*a*) 8 : 10 A.M. to 8 : 50 A.M.? (*d*) 8 : 50 A.M. to 9 : 00 A.M.?
(*b*) 9 : 30 P.M. to 9 : 52 P.M.? (*e*) 8 : 50 A.M. to 9 : 10 A.M.?
(*c*) 8 : 00 P.M. to 11 : 00 P.M.? (*f*) 8 : 50 A.M. to 9 : 30 A.M.?

10. The bedtime story on the radio begins at 7 : 12 P.M. and lasts for 15 minutes. When does it end? Is that before or after half-past seven?

How Old? How Tall? How Heavy? *

1. Our school nurse measured us and weighed us. Then she made these charts. Can you read them? How old is Janet? How tall is she? How much does she weigh?

NAMES	AGE	HEIGHT	WEIGHT
Janet	8	42	40
Alice	8	45	47
Grace	7	44	44
Mary	8	42	45
Jean	9	48	52
Margaret	8	44	47
Alma	8	46	50
Ann	7	46	50

NAMES	AGE	HEIGHT	WEIGHT
Robert	7	42	43
William	7	44	44
Albert	8	44	47
George	8	48	56
Charles	8	49	59
Samuel	8	50	60
Marlin	8	54	66
Carl	8	49	56

2. How old is Charles? How tall? How heavy?

3. Who is the tallest girl in the class? the shortest?

4. Who is the tallest boy in the class? the shortest?

5. Who is the heaviest girl in the class? the lightest?

6. Who is the heaviest boy in the class? the lightest?

7. Our school nurse says that an 8-year-old girl 42 inches tall should weigh 44 lb. Which two girls in our room should weigh 44 lb.? Are they under weight or over weight?

8. She says that an 8-year-old boy 49 inches tall should weigh 55 lb. Which two boys should weigh 55 lb.? Are they under weight or over weight?

9. Put a mark on the blackboard that you think is as far from the floor as the top of Janet's head. Measure with a yardstick to see how nearly right you guessed. Estimate the heights of Jean, Mary, and Samuel in the same way.

Working at the Store *

1. Henry helps Mr. Smith in his grocery store after school and on Saturdays. Mr. Smith pays him 20¢ an hour. Last week he worked 2 hours on Monday, 3 hours on Tuesday, 3 hours on Thursday, and 7 hours on Saturday. How much did he earn during the week?

2. Below are the prices of some of the things Henry sold and some of the orders he had to fill. See if you can find any mistakes in the bills he made out.

Sugar, 9¢ a lb.	Eggs, 60¢ a doz.
Peas, 18¢ a can.	Crackers, 18¢ a lb.
Milk, 10¢ a can.	Potatoes, $1.60 a bu.
Butter, 52¢ a lb.	Cocoa, 15¢ a can.

Mrs. Mell	
2 lb. sugar	18¢
3 cans peas	44¢
1 lb. butter	52¢
	$1.14

Mrs. Jones	
½ doz. eggs	30¢
½ lb. crackers	9¢
¼ lb. butter	13¢
	52¢

Mrs. Brown	
3 cans milk	30¢
½ doz. eggs	15¢
½ lb. crackers	9¢
	55¢

Mrs. Fox	
½ bu. potatoes	80¢
1 can cocoa	15¢
8 lb. sugar	72¢
1 lb. butter	52¢
	$2.29

Mrs. Ott	
1 pk. potatoes	20¢
1 can cocoa	15¢
4 cans peas	72¢
5 cans of milk	50¢
	$1.57

Mrs. Miller	
¼ lb. butter	13¢
½ lb. crackers	9¢
⅓ doz. eggs	20¢
1 pk. potatoes	40¢
	82¢

3. Henry's mother is going to make some fudge. She told Henry to bring home from the store 2 lb. of sugar, a can of milk, a box of cocoa, and a quarter of a pound of butter. What will those things cost?

Marking a Test Paper *

Here is a test paper of a third-grade boy, George Long. Tell where he made his mistakes. How many examples has he done correctly?

George Long. Third Grade. Jan. 4.

1. $ 3.19
4.56
9.00
.75
$17.50

2. $90.00
− 10.28
$79.72

3. $ 8.72
× 8
$68.76

4. 6)37212
622

5. 607
× 9
5,463

6. 654
87
306
98
5
1,140

7. 7)65115
9,302 r1

8. 8 932
− 587
8,335

9. Ted does errands for a butcher after school, receiving 5 cents for each errand and the carfare needed. How much should the butcher pay him if he did 8 errands and paid out 28¢ for carfare?

Ted's earnings = $8 \times 5¢ + 28¢ =$ 68¢. Ans.

10. David has a pair of roller skates and Arthur a tennis racket. Each wishes to trade with the other. If the skates are worth $1.65 and the tennis racket is worth $2.35, how much money must David give Arthur in addition to the skates?

Amount = $2.35 − $1.65 = $.70. Ans.

Matching Games *

Look at Game 1. No. 1 in column *A* is "$\frac{1}{4}$ lb." Find something in Column *B* that means the same. It is after the letter *c*, isn't it? Keep on going.

GAME 1

A	*B*
1. $\frac{1}{4}$ lb.	*a.* 1 lb.
2. $\frac{1}{2}$ doz.	*b.* 3
3. 4	*c.* 4 oz.
4. 12	*d.* 1 foot
5. yard	*e.* $\frac{1}{3}$ doz.
6. $\frac{1}{4}$ doz.	*f.* 6
7. $1\frac{1}{2}$ ft.	*g.* $\frac{1}{2}$ lb.
8. 16 oz.	*h.* 3 ft.
9. 12 in.	*i.* dozen
10. 8 oz.	*j.* $\frac{1}{2}$ yd.

GAME 2

A	*B*
1. nickel	*a.* 1 dime
2. 1 bu.	*b.* 5 nickels
3. 2 pt.	*c.* 4 pk.
4. half dollar	*d.* $\frac{1}{2}$ gal.
5. 25¢	*e.* 5 dimes
6. 2 qt.	*f.* 1 gallon
7. one dollar	*g.* quart
8. $\frac{1}{2}$ bu.	*h.* 2 pk.
9. 4 qt.	*i.* 5¢
10. 2 nickels	*j.* 100 cents

GAME 3

A	*B*
1. 72°	*a.* 60 min.
2. 9 : 40 P.M.	*b.* 5 : 45
3. hour	*c.* 15 min.
4. quarter past six	*d.* cold.
5. quarter of an hour	*e.* 7 days
6. week	*f.* 9 : 40 A.M.
7. 32°	*g.* 6 : 15
8. quarter of six	*h.* 30 min.
9. half hour	*i.* warm
10. twenty minutes of ten in the morning	*j.* 40 minutes past nine in the evening

1. Add and check:

a	*b*	*c*	*d*	*e*
675	600	909	2	748
483	3	98	326	49
20	54	876	748	409
753	896	769	765	690

2. Subtract and check:

6800	8794	8754	4805	8365
5763	364	6782	2807	73

3. Divide:

6)5874 7)8653 8)6456 9)7263 5)8632

4. Multiply and check by going over your work:

87	95	67	49	65
56	43	85	73	49

Which of these statements are true?

5. 4 gal. = 8 qt.

6. 3 ft. = 36 in.

7. $\frac{1}{2}$ sec. = 30 min.

8. $\frac{1}{4}$ lb. = 4 oz.

9. 1 ft. is $\frac{1}{3}$ of a yd.

10. $\frac{1}{4}$ hr. = 15 min.

11. 3 wk. = 21 days.

12. 4 bu. = 16 pk.

13. 4 pk. = 16 qt.

14. 10 : 45 is quarter after ten.

15. \$3.49 + 98¢ is about \$4.50.

16. 9984 is less than 9894.

17. $\frac{1}{4}$ doz. eggs at 56¢ a doz. will cost 14¢.

18. $\frac{1}{2}$ lb. crackers at 36¢ a lb. will cost 13¢.

19. IX is the Roman 9.

20. 9×7 is more than 8×8.

Progress Test No. 8

Write just the answers to these examples on your paper. Number each answer. (Record your score.)

1.	2.	3.	4.	5.	6.	7.	8.
7 × 7	8 × 7	9 × 7	9 × 9	9 × 8	8 × 8	7 × 6	8 × 9

9.	10.	11.	12.	13.	14.	15.	16.
9)63	8)72	9)81	8)56	9)72	8)64	7)42	9)54

17.	18.	19.	20.
5672 × 8	4976 × 7	3007 × 9	605 × 5

21.	22.	23.	24.
9)2754	4)2480	7)653	8)653

25. $55 \div 9 =$ ___ and ___ over.

26. At 69¢ each, how much would 8 dolls cost?

27. How many hours is it from 11 A.M. to 11 P.M.?

28. Find the total cost of 3 lb. of meat at 57¢ a lb. and a pound of butter at 62¢ a lb.

29. Five girls bought a gift for their teacher. It cost 95¢. If they share the cost equally, how much should each girl pay?

Standards: X, 27. Y, 23. Z, 20.

Finding Out What You Know and What You Don't Know

TEST I. ADDITION

			4. 395		
		3. 735	68		
	2. 531	86	432		**6.** $5.97
1. 305	867	95	753	**5.** $4.00	8.09
687	295	468	87	2.98	.95
395	463	279	958	2.47	.27

TEST II. SUBTRACTION

1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**
498	58	428	520	$.79	$2.46	900	$37.95
254	39	99	178	.65	1.37	279	29.86

TEST III. MULTIPLICATION

1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**
27	928	800	708	530	$5.56	4976	98
5	9	8	8	7	9	9	45

TEST IV. DIVISION

1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**
3)69	5)255	2)668	9)37	6)72	3)900	8)6472	6)255

TEST V. NUMBERS AND MEASUREMENT

1. 1 lb. = ___ oz.

2. $\frac{1}{4}$ lb. = ___ oz.

3. 2 pk. = ___ qt.

4. 3 bu. = ___ pk.

5. $\frac{1}{2}$ bu. = ___ pk.

6. ___ ft. = 1 yd.

7. What date will it be a year from next Christmas?

8. 36° is ___ degrees ___ than 24°.

9. Write $5980.06 in words.

Write the two ways in which each of these numbers may be read:

10. 5893 **11.** 9607 **12.** 7054

The Practice You Need

If you made any mistakes in the tests on the page before, you need practice on examples like the ones you missed. This table tells you where to find that practice.

Test I	Test II	Test III	Test IV	Test V
1. p. 160	**1.** p. 38, Exs. 3–4	**1.** p. 121, Exs. 1–4	**1.** p. 108	**1.** p. 163
2. p. 160	**2.** p. 86, Ex. 1	**2.** p. 131	**2.** p. 127	**2.** p. 163
3. p. 160	**3.** p. 86, Ex. 2	**3.** p. 150, Ex. 7	**3.** p. 126	**3.** p. 133
4. p. 160	**4.** p. 86, Ex. 3	**4.** p. 152, Exs. 1–3	**4.** p. 144	**4.** p. 133
5. p. 81, Ex. 6	**5.** p. 86, Ex. 4	**5.** p. 152, Exs. 1–3	**5.** p. 145	**5.** p. 133
6. p. 81, Ex. 6	**6.** p. 86, Ex. 5	**6.** p. 131	**6.** p. 150, Exs. 10–11	**6.** p. 13
	7. p. 86, Ex. 6	**7.** p. 180, Ex. 16	**7.** p. 152, Exs. 4–6	**7.** p. 166
	8. p. 164, Exs. 1–3	**8.** p. 182, Exs. 1–3	**8.** p. 195, Exs. 7–8	**8.** p. 151
				9. p. 106
				10. p. 105
				11. p. 105
				12. p. 105

Just for Fun

Bill: Write down any 3-figure number (using three different figures) like 573.

Jack: All right, I have.

Bill: Write the same number backward and subtract the smaller from the larger number. Now write your answer backward and add it to your answer. The sum is 1089.

Choose some number, and try Bill's trick with it. (Be sure to use three *different* figures.) You almost always get 1089 for your answer. Try the trick on your friends.

FOURTH GRADE

CHAPTER I

FUNDAMENTALS OF ARITHMETIC

Vacation Days

1. Bob said: "Hello, Billy! What did you do during vacation? I went to visit my grandfather on his farm. I traveled 69 miles on the train to Bloomfield, and then we drove 14 miles to the farm. I was ___ miles from home."

2. Billy said: "I was on a farm, too. To get there I traveled 76 miles on a train and 9 miles in a bus. I believe I was farther away than you, Bob." Was he?

3. Then Billy said: "I stayed three weeks and two days. That is ___ days all together. How long did you stay?"

4. "I went on August third and came home on August thirty-first," said Bob. Who stayed longer, Bob or Billy?

5. Bob said, "I sold 8 bu. of the potatoes I helped to raise at $.90 a bushel; so I received ___ for the potatoes."

6. Billy answered, "I sold 7 bu. of the beans I helped to raise at $1.50 a bushel; so I received ___ for the beans."

Counting by Thousands

1. One Saturday when my brother took me to a Big League baseball game I wondered how many people were there. I guessed there were about a thousand people sitting in each section; so I counted them by sections, this way: One thousand, two thousand, three thousand, and so on up to nine thousand.

2. The next time I went I counted 21 thousand people; the next time, 44 thousand; and the last time, 42 thousand. To find out how many tickets had been sold for all four games, I wrote the numbers down and added them. Can you read the answer? It is *one hundred sixteen thousand.*

9,000
21,000
44,000
42,000
116,000

3. My brother said: "Of course there might not have been exactly 1,000 seats in each section. Suppose there were 1,001 in each section; then how many people were at the game the first day you went?" I said, "Then there were 9 thousand and 9 people." My brother said: "Don't say 9 thousand *and* 9 people. You should say 9 thousand, 9."

4. The other days there were 21 thousand, 21; 44 thousand, 44; and 42 thousand, 42. I put these numbers down and added them. Can you read my answer? It is *one hundred sixteen thousand, one hundred sixteen.* The figures to the left of the comma tell the number of thousands. The figures to the right of the comma tell how many more.

9,009
21,021
44,044
42,042
116,116

5. Read:

99,997	100,000	900,000
99,998	100,001	990,000
99,999	100,010	999,000
100,000	100,100	999,900
100,001	101,000	999,990
100,002	110,000	999,999

Reading Large Numbers

Find the number in Column *B* that matches each number in Column *A*.

A	*B*
1. Three thousand, three	*a.* 30,030
2. Three thousand, thirty	*b.* 30,003
3. Thirty thousand, three	*c.* 3,003
4. Thirty thousand, thirty	*d.* 3,300
5. Three thousand, thirty-three	*e.* 3,030
6. Three thousand, three hundred	*f.* 3,033
7. Thirty thousand, three hundred	*g.* 30,300
8. Three hundred thousand, three	*h.* 330,003
9. Three hundred three thousand	*i.* 303,000
10. Three hundred thirty thousand, three	*j.* 300,003

Read these numbers:

11.	70,506	46,003	450,632
12.	8,007	305,967	50,005
13.	27,554	82,304	150,235
14.	162,275	400,240	340,004
15.	35,806	65,072	654,024

16. Write in figures: four thousand, four; forty thousand, four; seventy thousand, seven hundred seventy.

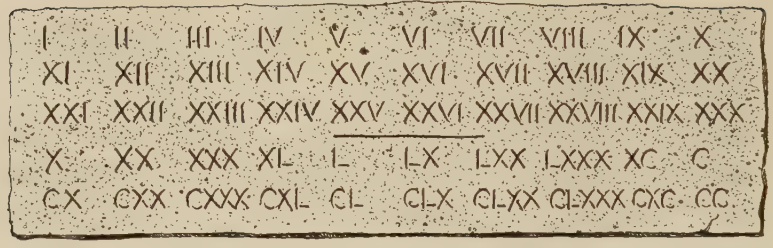
17. What are the first three numbers that come after 98? 998? 9,998? 99,998?

18. Add 1 to each of these numbers and read the answer:

99 199 999 9,999 99,999 999,909

19. Ask your teacher to read some large numbers for you to write in figures.

Roman Numerals


I II III IV V VI VII VIII IX X
XI XII XIII XIV XV XVI XVII XVIII XIX XX
XXI XXII XXIII XXIV XXV XXVI XXVII XXVIII XXIX XXX
X XX XXX XL L LX LXX LXXX XC C
CX CXX CXXX CXL CL CLX CLXX CLXXX CXC CC

This is the way that Marcus, a little Roman boy, wrote his numbers on a clay tablet 2000 years ago. Can you read them? (The first three rows go from 1 to 30. The next two rows are read, 10, 20, 30, etc., up to 200.)

I = 1 V = 5 X = 10 L = 50 C = 100

1. In the chart above find 8, 12, 15, 19, 24, 28, 30.

I before V means 1 less than 5, or 4.
I before X means 1 less than 10, or 9.
X before L means 10 less than 50, or 40.
X before C means 10 less than 100, or 90.

2. Find these numbers in the chart at the top of the page:
40 60 80 120 90 130 150 200 160 190 100 180

3. XXX = ___, VIII = ___; so XXXVIII = ___.

4. XL = ___, IV = ___; so XLIV = ___.

5. LXX = ___, VI = ___; so LXXVI = ___.

6. C = ___; XXX = ___; II = ___; so CXXXII = ___.

7. CC = ___; so CCLXXVI = ___.

8. Where are Roman numerals used in this book? Where else have you seen Roman numerals?

Telling Time

1. What time is it by this watch?

2. Which is the hour hand? the minute hand? the second hand?

3. How long does it take the hour hand to make one whole turn? the minute hand? One hour equals ___ minutes.

4. How long does it take the second hand to go from 60 round to 60? One minute equals ___ seconds.

60 seconds (sec.)	**= 1 minute (min.)**
60 minutes (min.)	**= 1 hour (hr.)**
24 hours (hr.)	**= 1 day (da.)**

5. While the hour hand goes from 3 to 4, how far does the minute hand go?

6. Have you a toy clock in your room? Make it say: 1 o'clock; 2 o'clock; and so on up to 12 o'clock.

7. Make your clock say: half-past one; half-past two; and so on up to half-past twelve.

8. Make your clock say: quarter after one; quarter after two; and so on.

9. Make it say: quarter of one; quarter of two; and so on.

10. Tell what time it is for every five minutes from three o'clock until four o'clock. How does the clock look at each of these times?

11. My ticket says the show I am going to see this afternoon starts at 2:20. (2:20 is read "Two twenty.") That is the same as ___ minutes past ___. How will the clock look at that time?

Telling Time

1. Make your clock say: 5 : 00, 5 : 10, 5 : 15, 5 : 20, 5 : 30, 5 : 40, 5 : 50, 6 : 00, 6 : 01, 6 : 02, 6 : 03, 6 : 04.

2. If your mother writes a note, asking the teacher to let you go home at 1 : 30, how will the clock look when it is time for you to go?

3. How does the clock look at 1 : 35? 1 : 40? 1 : 45? 1 : 50? 1 : 55?

4. Read in two ways: 8 : 25, 7 : 14, 6 : 10, 3 : 29, 8 : 16, 3 : 24.

5. 9 : 40 is read, "Nine ___" or "___ minutes of ___."

6. Read in two ways: 9 : 25, 9 : 16, 8 : 27, 6 : 35, 7 : 50, 7 : 56, 8 : 59, 6 : 42, 7 : 35, 8 : 43.

7. Ted is going to his grandfather's. He looked at the time table and saw that the train leaves at 8 : 40; so he was at the station this morning all ready to go at twenty minutes of nine. (Is 8 : 40 the same as twenty minutes of nine?) He waited and waited, but no train came. Then he asked the station agent what was the matter. The agent said: "You read the time table wrong. That train leaves at 8 : 40 P.M." What mistake had Ted made?

8. Ask your teacher if you may bring a time table to school. Pretend that you are going away and look to see what time your train leaves. Don't make the mistake Ted did. A.M. means ___. P.M. means ___.

9. How many minutes are there in an hour? $\frac{1}{2}$ hour? $\frac{1}{4}$ hour? $\frac{3}{4}$ hour?

10. My watch says 9 : 12. It is ten minutes slow. What is the right time? My brother's watch says 9 : 30. His watch is ___ minutes fast.

100 Addition Facts

Practice saying the answers to these facts aloud. Then see if you can write all the answers on folded paper in five minutes. If you make errors on any facts, study those facts and then take the test again. Keep practicing until you can write every fact correctly.

1.	7	2	2	2	4	4	3	4	1	9
	1	9	5	8	4	1	1	0	8	9
2.	7	2	6	5	3	1	9	8	1	1
	7	0	1	4	3	1	2	8	3	6
3.	1	2	2	5	0	0	7	1	0	8
	7	1	2	5	0	1	2	9	9	1
4.	6	0	3	0	2	3	4	0	6	8
	2	4	6	2	4	0	5	8	0	3
5.	8	6	1	9	5	6	3	4	1	9
	2	4	4	1	0	6	2	3	5	0
6.	2	9	0	6	3	3	3	2	3	6
	6	3	6	5	8	4	9	3	5	3
7.	7	2	8	4	8	1	5	4	1	5
	3	7	4	8	0	0	2	2	2	3
8.	0	0	5	7	8	7	5	9	6	6
	3	5	1	0	5	9	8	7	8	9
9.	5	7	8	9	5	8	8	4	7	4
	7	8	7	6	9	9	6	7	5	9
10.	9	9	6	0	5	4	7	7	9	3
	5	4	7	7	6	6	6	4	8	7

Finding Your Addition Troubles

In these examples begin at the bottom and add upward. Then, to check, begin at the top and add downward. If your two answers to Example *A* do not agree, you need help in that kind of addition; so do the three examples below it. Check each of those in the same way. If the first two answers to Example *B* do not agree, do the three examples below it, and so on.

A	*B*	*C*	*D*	*E*	*F*	*G*	*H*
				2	19	4	
		24	8	4	16	40	$26.79
31	32	40	2	6	26	16	3.00
32	53	30	3	8	35	28	25.78
15	3	20	6	7	58	19	28.96
				3	63		
		11	5	4	25	25	$ .25
24	52	20	5	5	16	8	5.30
63	5	58	1	6	28	20	8.94
11	42	10	8	8	24	37	4.56
				8	29	36	
		10	3	3	18	20	$ .20
16	31	20	8	6	26	9	38.96
41	6	44	3	7	85	17	2.54
41	22	20	4	5	68	8	14.68
				6	37	8	
		10	3	3	15	50	$ 7.84
25	32	25	5	5	12	13	4.00
22	23	32	4	6	36	5	86.43
11	2	20	5	9	25	16	38.97

In addition examples the numbers to be added are called the *addends*. Name the addends in the examples under *B*. The answer in an addition example is called the *sum*.

100 Subtraction Facts

See the directions at the top of page 213.

1.	6	2	5	6	3	7	4	5	8	6
	1	1	2	3	1	1	3	5	4	5
2.	9	4	9	9	5	5	1	8	4	6
	8	4	1	9	3	4	1	1	2	6
3.	3	3	7	5	0	3	5	9	8	10
	3	2	7	1	0	0	0	6	2	4
4.	8	9	7	6	9	7	12	10	8	11
	8	3	3	0	0	2	6	7	6	2
5.	10	6	10	7	9	8	4	2	7	6
	1	2	2	6	5	7	1	2	5	4
6.	11	13	15	8	11	11	9	10	10	14
	7	6	8	5	5	8	2	3	9	7
7.	12	10	7	12	1	8	7	12	10	10
	4	8	4	8	0	3	0	9	5	6
8.	8	2	9	9	4	14	13	16	14	17
	0	0	7	4	0	9	4	9	5	9
9.	15	17	15	13	13	16	13	13	11	14
	9	8	7	9	5	7	7	8	3	6
10.	12	15	14	12	12	11	11	16	18	11
	3	6	8	5	7	4	6	8	9	9

Finding Your Subtraction Troubles

TEST I

Do the first example in each column, checking your work as you go by adding your answer to the smaller number to see if it gives you the larger number. If you make a mistake in any subtraction, do the other four examples in that column for practice.

A	*B*	*C*	*D*	*E*	*F*
74	75	98	864	675	75
32	50	68	241	305	48
39	68	78	596	596	62
13	40	58	354	360	36
64	90	67	678	784	74
51	50	37	555	503	56
99	78	74	987	876	87
57	60	54	653	605	59
86	95	66	768	987	66
53	70	46	532	540	58

784
596
188

In this subtraction example
784 is the *minuend;*
596 is the *subtrahend;*
188 is the *difference* or *remainder.*

1. In checking a subtraction example we add the ___ to the subtrahend to see if their sum equals the ___.

2. Label the minuend, the subtrahend, and the difference or remainder in each example you worked in Test I.

TEST II

See the directions for Test I on page 216.

A	*B*	*C*	*D*	*E*	*F*
395	765	656	852	$5.08	$4.00
126	16	383	575	3.59	.83
786	873	725	817	$8.09	$6.00
458	66	664	748	5.65	4.82
684	545	817	921	$4.80	$6.00
547	27	525	899	3.65	.57
475	563	648	654	$5.80	$8.00
329	29	385	378	4.92	2.76
586	874	825	832	$6.08	$9.00
138	27	473	567	4.39	8.74

1. A man who was taking a 126-mile trip drove 59 miles of the trip before noon. How many miles of his trip did he have to cover after that?

2. A farmer raised 1600 bu. of corn. He wants to keep 850 bu. and sell the remainder. How many bushels does he wish to sell?

3. Jack earned $8.00. If he spends $3.49 for a pair of skates, how much will he have left?

4. When my mother took me to the city with her, we went to a cafeteria for dinner. I bought meat and potatoes for 25¢, rolls and butter for 8¢, spinach for 10¢, milk for 10¢, and fruit for 8¢. My bill was 61¢. Was that correct?

WHAT GIRLS CAN GET WITH RED STAR COUPONS

2000 *Coupons*

625 *Coupons*

1500 *Coupons*

350 *Coupons*

215 *Coupons*

135 *Coupons*

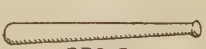
875 *Coupons*

235 *Coupons*

WHAT BOYS CAN GET WITH RED STAR COUPONS

2000 *Coupons*

225 *Coupons*



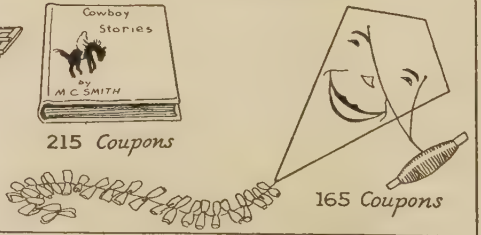
350 *Coupons*

380 *Coupons*

1000 *Coupons*

215 *Coupons*

25 *Coupons*



165 *Coupons*

*Note to the Teacher. See second paragraph in Section 7, page v, of Authors' Preface.

Saving Coupons*

1. Marie has 512 Red Star coupons. How many more coupons does she need to get a bicycle? a doll? a doll carriage? a pair of skates?

2. How many coupons are needed for the set of dishes and the sewing box? If Marie gets those, how many coupons will she have left?

3. Has Marie enough coupons to get the book and the box of paints?

4. How many coupons would be needed to get the doll, skates, and set of dishes?

5. Name all the things or groups of things Marie can get with her 512 coupons, and tell how many coupons she will have left in each case.

6. Ted is saving Red Star coupons to get a bicycle. He had 324 coupons, and his uncle sent him 269 more. How many coupons does he have now?

7. How many more coupons does Ted need in order to get his bicycle?

8. How many more would he need for a sled?

9. Ted said, "I have enough coupons now to get a ball and bat." Has he? How many coupons would he have left over if he got the ball and bat?

10. How many coupons are needed for the "Cowboy Stories," the top, and the kite? Has Ted enough coupons to get those three things? Would he have any coupons left over?

11. Name all the things or groups of things Ted could get with his 593 coupons, and tell how many coupons he would have left in each case.

12. Make up a coupon problem for the class to solve.

100 Multiplication Facts

Turn to page 213. Think of those 100 examples as *multiplication* examples. Give all the answers orally. Then see if you can write the answers on folded paper in 6 minutes. Practice every day until you can write the whole hundred multiplication facts correctly in 6 minutes.

1. Add 2 to each of these products:

9×7	5×7	9×3	7×4	6×5
3×5	8×4	2×6	8×7	9×8
7×7	8×6	9×5	9×6	8×8
6×6	6×7	5×9	7×5	9×9
5×6	3×9	4×7	5×4	7×9
8×9	6×2	7×8	4×8	4×6
3×8	5×2	6×9	6×8	9×0
7×3	6×4	5×5	7×6	0×5

2. Add 3 to each of the above products; add 4; add 5.

Write in figures the numbers:

3. *From* four hundred thousand, five hundred *to* four hundred thousand, five hundred ten.

4. *From* thirty thousand, ten *to* thirty thousand, twenty.

5. *From* three hundred fifty thousand, three hundred ninety *to* three hundred fifty thousand, four hundred.

6. *From* four hundred ninety-nine thousand, nine hundred ninety *to* five hundred thousand.

7. *From* five hundred thousand *to* five hundred thousand, ten.

8. *From* four hundred four thousand *to* four hundred four thousand, ten.

9. Ask your teacher to read some large numbers to see if you can write them in figures.

Multiplication You Learned in Third Grade

1.

685
4
2740

(1) In doing this multiplication you think, "4 fives are ___." You write the ___ and carry the 2.

(2) Then you think, "4 eights are ___, and 2 (to carry) are ___." You write the ___ and carry the ___.

(3) You think, "4 sixes are ___, and ___ (to carry) are ___." You write the 27. The answer is ___.

2.

82
56
492
410
4592

(1) In doing this multiplication you think, "6 twos are ___." You write the ___ and carry the 1.

(2) You think, "6 eights are ___, and 1 (to carry) are ___." You write the ___.

(3) You think, "5 twos are ___." You write the ___ under the 5, and carry the ___.

(4) You think, "5 eights are ___, and ___ (to carry) are ___." You write the 41. Adding, the answer is ___.

3. Explain each of these examples:

a.	*b.*	*c.*	*d.*	*e.*	*f.*
367	540	372	65	54	76
3	4	5	46	18	39
1101	2160	1860	390	432	684
			260	54	228
			2990	972	2964

4. Multiply 789 by 6; 987 by 7; 879 by 9; 576 by 7.

5. Multiply 78 by 69; 69 by 78; 67 by 59; 98 by 47.

6. Multiply 86 by 56; 94 by 81; 87 by 93; 86 by 59.

7. Multiply 65 by 76; 95 by 48; 76 by 79; 68 by 37.

8. Multiply 89 by 54; 96 by 37; 64 by 78; 65 by 89.

Finding Your Multiplication Troubles

Multiply and then check by multiplying again. If the two answers you get to Example *A* do not check, you need help in that kind of multiplication; so do the four examples below it. Do the same for Example *B*, and so on.

A	*B*	*C*	*D*	*E*	*F*	*G*	*H*
25	623	619	794	974	860	605	16
3	3	5	2	4	9	8	23
47	622	924	982	549	870	507	53
5	3	4	3	3	9	9	66
56	532	617	681	862	740	409	98
5	2	4	7	7	7	6	78
48	723	519	683	549	750	706	74
3	3	4	3	6	9	5	63
59	534	628	972	786	860	809	89
5	2	3	2	9	7	7	72

In this multiplication example

75 is the *multiplicand;*
4 is the *multiplier;*
300 is the *product.*

$$\begin{array}{r} 75 \\ \times\ 4 \\ \hline 300 \end{array}$$

$4 \times 75 = 300$

1. Tell what is the multiplicand, the multiplier, and the product in each of the examples in the first row on this page.

2. What is the multiplier in each of the examples in Column *H*?

Multiplying and Adding

There are two mistakes in these multiplication examples. How quickly can you find them?

	a	*b*	*c*	*d*	*e*	*f*
1.	74	48	76	70	69	50
	56	35	82	54	35	94
	444	240	152	280	355	200
	370	144	608	350	207	450
	4144	1680	6232	3780	2425	4700

g	*h*	*i*	*j*	*k*
7890	6075	$57.06	$63.87	$80.09
6	9	8	7	8
47340	54675	$456.48	$447.09	640.72

Copy, multiply, and check: (Don't forget to put the dollar sign ($) and the cents point in each answer.)

2.	**3.**	**4.**	**5.**	**6.**
$67.80	$42.82	$59.68	$70.40	$60.07
5	7	9	6	8

Copy, add, and check: (Don't forget to put the dollar sign and the cents point in each answer. You know that in adding dollars and cents the dollar sign is written in *two* places only, with the first addend and with the answer.)

7.	**8.**	**9.**	**10.**	**11.**
$4.25	$6.89	$9.76	$7.83	$6.78
3.78	5.47	.47	.45	9.45
1.28	.36	8.05	6.45	6.57
4.96	8.89	7.63	8.76	.43
.47	5.11	8.72	9.98	8.29

Choosing the Easier Way to Multiply

(1) Ted worked at a garage for 18 days during his vacation. He was paid \$2 a day for his work. Do you know how much Ted earned all together?

(2) To find out, Ted thought, "I get \$2 for 1 day. So for 18 days I'll get 18 times \$2, or \$36." This is the way he multiplied: →

\$ 2
× 18
16
2
\$36

(3) Ted's father said, "It would have been easier, Ted, if you had multiplied the larger number by the smaller one, this way:" →

18
× 2
36
Ans. \$36

(4) Do you agree with Ted's father? Does $18 \times 2 = 2 \times 18$?

(5) Notice the answer, 36, which Ted's father got by using the short way. It stands for dollars. Ted earned ___ dollars.

In working these examples, use the easier way of multiplying. Find the cost of:

1. 15 oranges at 4¢ each
2. 12 pears at 6¢ each
3. 11 plums at 3¢ each
4. 14 peaches at 7¢ each
5. 12 grapefruit at 8¢ each
6. 5 melons at 16¢ each
7. 16 plums at 5¢ each
8. 17 apricots at 2¢ each
9. 13 bananas at 4¢ each
10. 11 grapefruit at 9¢ each
11. 65 baseballs at \$2 each
12. 264 books at \$3 each
13. 195 hats at \$4 each
14. 235 toys at 5¢ each
15. 175 tops at 8¢ each
16. 250 balls at 5¢ each
17. 165 tickets at 5¢ each
18. 248 pads at 4¢ each
19. 134 pencils at 3¢ each
20. 463 erasers at 6¢ each

Do you ever make lemonade for your class? How many lemons and how much sugar is needed? How much does the lemonade cost?

The Library*

1. I read in the newspaper that our town library has 3,567 books for children and 5,989 books for grown-ups. There must be ___ books in the library all together.

2. I have been borrowing books from the library for the last year. My card shows that I have borrowed 19 books. There must be ___ children's books there that I have not borrowed.

3. The library allows you to keep a book out of the library for 2 weeks. I borrowed one on October 15. On what date must I return it?

4. I borrowed a book on August 2 and did not return it until August 29. I kept that book ___ days longer than I should have.

5. If a book is kept out of the library for more than 2 weeks, the library charges a fine of 3¢ for every extra day. So I had to pay a fine of ___¢ on that book.

6. My friend Dick told me he had to pay a fine of 30¢ at one time. He must have kept his book out ___ days after it was due.

Tell what numbers or words belong in these blank spaces. If you do not know the answer to any one, look at the tables on the next page for help.

	a	*b*
1.	1 lb. = ___ oz.	1 week = ___ da.
2.	$\frac{1}{2}$ lb. = ___ oz.	1 day = ___ hr.
3.	$\frac{1}{4}$ lb. = ___ oz.	1 hr. = ___ min.
4.	1 doz. = ___ things.	$\frac{1}{2}$ hr. = ___ min.
5.	$\frac{1}{2}$ doz. = ___ things.	$\frac{1}{4}$ hr. = ___ min.
6.	$\frac{1}{4}$ doz. = ___ things.	1 pk. = ___ qt.
7.	$\frac{1}{3}$ doz. = ___ things.	$\frac{1}{2}$ pk. = ___ qt.
8.	1 gal. = ___ qt.	$\frac{1}{4}$ pk. = ___ qt.
9.	1 qt. = ___ pt.	1 bu. = ___ pk.
10.	1 ft. = ___ in.	$\frac{1}{2}$ bu. = ___ pk.
11.	1 yd. = ___ ft.	$\frac{1}{4}$ bu. = ___ pk.
12.	1 yd. = ___ in.	1 yr. = ___ wk.
13.	$\frac{1}{2}$ ft. = ___ in.	1 yr. = ___ days.
14.	2 ft. = ___ in.	1 ton = ___ lb.
15.	$\frac{1}{2}$ yd. = ___ in.	$\frac{1}{2}$ ton = ___ lb.
16.	$\frac{1}{4}$ yd. = ___ in.	$\frac{1}{4}$ ton = ___ lb.
17.	\$1.00 = ___ dimes	\$1.00 = ___ quarters.

18. 70 min. = ___ hr. and ___ min.

19. 9 : 40 is ___ minutes before ___ o'clock.

20. 14 in. = ___ ft., ___ in.

21. 15 da. = ___ wk., ___ da.

22. 10 qt. = ___ gal., ___ qt.

Tables of Measurement

Measures of Length

12 inches (in.) = 1 foot (ft.)
3 feet (ft.) = 1 yard (yd.)
36 inches (in.) = 1 yard (yd.)
5280 feet (ft.) = 1 mile (mi.)

Dry Measure

2 pints (pt.) = 1 quart (qt.)
8 quarts (qt.) = 1 peck (pk.)
4 pecks (pk.) = 1 bushel (bu.)

Measures of Weight

16 ounces (oz.) = 1 pound (lb.)
2000 pounds (lb.) = 1 ton (T.)

Measures of Liquid

2 pints (pt.) = 1 quart (qt.)
4 quarts (qt.) = 1 gallon (gal.)

Measures of Time

60 seconds (sec.) = 1 minute
60 minutes (min.) = 1 hour (hr.)
24 hours (hr.) = 1 day (da.)
7 days (da.) = 1 week (wk.)
52 weeks (wk.) = 1 year (yr.)
365 days (da.) = 1 year
366 days (da.) = 1 leap year
12 months (mo.) = 1 year

12 = 1 dozen (doz.)

1. Name something that is about a mile from your school. How many feet is a mile?

2. Name something that is about $\frac{1}{2}$ mile from the school; $\frac{1}{4}$ mile; 2 miles; 3 miles. Tell how many feet there are in each of these distances.

3. Name something that is sold by the ton. How many pounds of coal are there in a ton? $\frac{1}{2}$ ton? $\frac{1}{4}$ ton? 6 tons?

4. Would you rather it would take the dentist a minute or a second to pull your tooth? Which lasts longer, half a minute or 30 seconds?

5. How many seconds are there in a minute? in 2 min.? in 3 min.? in $\frac{1}{2}$ min.? in $\frac{1}{4}$ min.?

6. If you save a dollar a week for two years, how many dollars have you saved?

7. Complete: To find how many feet there are in 40 inches, you ___ 40 by ___; to find how many weeks there are in 40 days, you ___ 40 by ___.

90 Division Facts

See the directions at the top of page 213.

1.	5)30	2)18	1)4	5)25	3)0	7)35	1)5	4)8	9)0
2.	1)3	5)35	3)3	9)81	7)42	8)8	7)28	8)0	4)12
3.	3)6	2)16	5)40	7)49	1)2	8)16	4)16	9)9	7)21
4.	2)14	3)9	7)56	5)45	9)72	6)0	8)24	7)14	5)20
5.	1)1	7)63	3)12	5)15	4)20	7)7	9)63	6)6	8)32
6.	8)56	2)12	5)10	4)24	7)0	9)54	6)12	3)15	8)40
7.	2)10	5)5	4)28	6)54	9)45	6)18	4)4	3)18	8)48
8.	5)0	4)32	6)48	9)36	6)24	1)6	3)21	2)2	1)0
9.	4)36	6)42	9)27	6)30	2)8	4)0	8)64	2)0	3)24
10.	6)36	2)6	1)7	9)18	1)8	8)72	2)4	1)9	3)27

Uneven Division Facts

Do these divisions orally: (Work by rows, not by columns.)

1. 5)10 5)11 5)12 5)13 5)14 5)15 5)16 5)17 5)18

2. 7)21 7)22 7)23 7)24 7)25 7)26 7)27 7)28 7)29

3. 8)40 8)41 8)42 8)43 8)44 8)45 8)46 8)47 8)48

4. 9)54 9)55 9)56 9)57 9)58 9)59 9)60 9)61 9)62

5. 6)39 6)40 6)41 6)42 6)43 6)44 6)45 6)46 6)47

6. 2)18 3)18 4)18 5)18 6)18 7)18 8)18 9)18 9)19

7. 3)28 2)17 5)47 8)73 6)57 7)53 4)31 9)65 8)66

8. 8)59 9)57 4)39 7)48 6)53 8)53 5)42 2)15 3)23

9. 9)82 8)65 7)55 8)55 9)59 7)60 9)67 8)62 7)62

10. 8)54 7)59 9)69 8)79 9)89 7)48 9)62 7)62 8)71

11. If you have a quarter, how many 3-cent oranges can you buy and how much change will you get? How many 4-cent oranges? 5-cent oranges? 6-cent oranges? 7-cent oranges? 8-cent oranges? 9-cent oranges?

Division You Learned in Third Grade

1. $\begin{array}{r} 5\overline{)26} \\ \hline 5 \text{ r1} \end{array}$ (1) In doing this division example you think, "5 in 26, 5 times and 1 over." You write the 5 under the 6 of the 26 and the r1 (remainder of 1) beside it.

2. $\begin{array}{r} 2\overline{)248} \\ \hline 124 \end{array}$ (1) In doing this example you think, "2 in 2, ___ time," and write the 1 under the 2.

(2) You think, "2 in 4, ___ times," and write the 2 under the 4.

(3) You think, "2 in 8, ___ times," and write the 4 under the 8.

(4) 248 divided by 2 is 124.

3. $\begin{array}{r} 3\overline{)616} \\ \hline 205 \text{ r1} \end{array}$ (1) In doing this example you think, "3 in 6, ___ times." Write the 2 under the 6.

(2) You think, "3 in 1 goes 0 times and 1 over." Write a 0 under the 1.

(3) Think, "1 with 6 is 16. 3 in 16, ___ times and ___ over." Write the 5 under the 6, and then write the r1.

(4) 3 is contained in 616, 205 times and 1 over.

4. $\begin{array}{r} 9\overline{)4687} \\ \hline 520 \text{ r7} \end{array}$ (1) In doing this division you think, "9 in 46, ___ times and ___ over." Write the 5 under the 6 of the 46.

(2) Think, "1 with 8 is 18. 9 in 18, ___ times." Write the 2 under the 8.

(3) Think, "9 in 7, ___ times and 7 over." Write the 0 under the 7 and write the r7 to show the remainder.

(4) 9 is contained in 4687, ___ times with ___ left over.

5. See if you can divide 4687 by 9 without looking at the explanation.

Can you find any mistakes in these division examples?

	a	*b*	*c*	*d*
1.	4)484 121	5)687 117 r2	4)417 104 r1	5)136 27 r1
2.	8)963 12 r3	7)225 32 r1	9)1846 205 r1	7)2247 321
3.	5)200 40	4)840 210	8)1720 210	9)2079 230 r9

Now do these divisions:

4. *a.* 6)592 *b.* 5)499 *c.* 6)419 *d.* 7)410 *e.* 8)715

f. 7)203 *g.* 8)304 *h.* 9)405 *i.* 6)504 *j.* 6)593

5. Mary earned 56¢ last week and 68¢ this week. If she spends 75¢ for a ticket to the circus, how much money will she have left?

6. If the first Wednesday in November is the fourth day of the month, what day of the month is the third Wednesday?

7. How many baseball teams of 9 boys each could be formed from 48 boys? Would there be any boys left over?

8. When Billy asked his father for some money, his father said, "I have 58¢. I will give you half of it if you can tell me how much that is." Billy said, "It is ___¢." His father said, "That's right; you may have the money."

9. Then Billy's father pulled out of his pocket a quarter, two dimes, one nickel, and eight cents. Is that 58¢? If you had been Billy, which coins would you have taken?

Checking Division

(1) $2\overline{)42}$ R 21 (2) $3\overline{)66}$ R 22 (3) $5\overline{)255}$ R 51 (4) $9\overline{)7209}$ R 801

1. In Example (1) does 2 times 21 equal 42?
2. In Example (2) what does 3 times 22 equal?
3. In Example (3) what does 5 times 51 equal?
4. In Example (4) what does 9 times 801 equal?

To check a division example, multiply the answer by the number you divided by. The product should equal the number that was divided.

5. $3\overline{)37}$ R 12 r1 — In this example 3 times 12 equals ___. $36 + 1$, the remainder, equals ___.

6. $4\overline{)87}$ R 21 r3 — In this example 4 times 21 equals ___, plus the remainder 3 equals ___.

7. $6\overline{)86}$ R 14 r2 — In this example 6 times 14 equals ___, plus the remainder ___ equals ___.

8. Make up a rule for checking division examples which have remainders.

9. Are these examples checked correctly?

	Work	Check		Work	Check
a.	$7\overline{)145}$	20	*b.*	$8\overline{)187}$	23
	20 r5	$\times 7$		23 r3	$\times 8$
		140			184
		$+ 5$			$+ 3$
		145			187

Divide and check: **10.** $8\overline{)3075}$ **11.** $6\overline{)3045}$ **12.** $9\overline{)3825}$

Finding Your Division Troubles

Do the first example in each column. If the example does not check, do the other four examples in that column for practice. Be sure to check each one.

TEST I

A	*B*	*C*	*D*	*E*	*F*
7)29	3)69	3)366	2)608	4)52	5)195
5)26	2)68	3)396	3)906	5)65	6)192
9)55	4)48	4)484	4)800	6)78	5)185
8)49	2)86	4)844	2)406	7)84	6)198
9)56	3)66	2)684	3)660	8)96	9)378

TEST II

A	*B*	*C*	*D*	*E*	*F*
6)876	3)615	3)77	2)811	3)752	9)4536
7)924	9)918	6)75	4)823	4)923	8)4864
2)734	5)535	8)95	6)649	5)752	9)7254
5)875	4)816	5)58	5)547	3)482	7)2835
8)992	7)735	4)55	6)635	5)454	8)1668

A Practice Page

5)257
51 r2

In this division example, 257 is the *dividend*, 5 is the *divisor*, 51 is the *quotient*, and 2 is the *remainder*.

1. Look at your work in Test I, page 233, and name the dividend, divisor, quotient, and remainder in each of the examples in the first row.

2. Can you find the five mistakes in these examples?

a. 9)559 62 r1	*b.* 7)436 62 r2	*c.* 2)861 430 r1	*d.* 5)504 10 r4
e. 5)547 19 r2	*f.* 7)8428 124	*g.* 6)2705 450 r5	*h.* 9)2897 321 r8
i. 4)2970 742 r2	*j.* 5)7856 1573 r1	*k.* 6)4947 824 r3	*l.* 8)1756 219 r3
m. 9)2781 309	*n.* 7)5446 778	*o.* 5)7965 1593	*p.* 3)8769 2923

3. Copy and find the quotient in each of these examples:

a. 5)6735	*b.* 7)1589	*c.* 8)2592	*d.* 9)4788
e. 6)5670	*f.* 4)9800	*g.* 6)3720	*h.* 7)4480

4. 76 × 54	**5.** 38 × 75	**6.** 49 × 83	**7.** 67 × 54	**8.** 98 × 87
9. 3054 × 6	**10.** 9876 × 7	**11.** 5079 × 8	**12.** 8430 × 5	**13.** 5682 × 9

14. Copy in columns and find the sum of \$9.87, \$3.54, and \$6.89. Find the sum of \$4.76, \$5.95, \$.05, and \$4.87.

Just for Fun*

Can you find eight things wrong in this picture?

Telling What to Do

First tell whether you would add, subtract, multiply, or divide to find what is missing in these problems. Then find the missing number in each problem. Do not use a pencil.

1. I have 9¢. If I earn 8¢ more, I'll have ___ cents.

2. I can get a drum for 50¢ and a horn for 30¢. The drum costs ___ cents more than the horn.

3. There are ___ ft. in one yard, and ___ ft. in 2 yards.

4. The product of 8 and 5 is ___.

5. Five peaches at 7¢ each will cost ___ cents.

6. I spent 5¢ this morning. This afternoon I spent 8¢ and 9¢. All together I have spent ___ cents today.

7. The teacher told 12 of us boys to line up in 4 rows. We had to stand ___ in a row.

8. I have 18¢ and want to buy a 25-cent knife. I need ___ cents more.

9. It is 9 : 45. Ten minutes ago it was ___.

10. A quarter and a half dollar make ___ cents.

11. It is 10 : 15. A half hour from now it will be ___ of ___.

12. Paul has a quarter. If he buys a ten-cent balloon, he will have ___ cents left.

13. I bought a book for 39¢ and handed the clerk a half dollar. He should give me ___ cents change.

14. The sugar and chocolate for 5 Easter eggs cost 20¢; so each Easter egg cost ___ cents.

15. The sum of 8, 9, 8, 7, and 5 is ___.

16. If one top costs 8¢, 7 tops will cost ___ cents.

17. The difference between 25 and 20 is ___.

18. At 6¢ each, you can get ___ apples for a quarter.

19. Helen is 12 years old, and Mary is 9 years old. Helen is ___ years older than Mary.

20. A 5-cent ball, a 6-cent top, and a 10-cent doll will cost ___ cents all together.

21. I saw 5 rows of boys, with 3 boys in each row. There were ___ boys in all.

22. In 3 gal. there are ___ qt.

23. Six girls bought a basket of flowers. They paid 90¢ for it. Each girl's share of the cost was ___ cents.

24. 28 less 9 is ___.

25. 12 qt. = ___ gal.

26. May has 8¢. George says he has 3 times as much; so he must have ___ cents.

27. 24 in. = ___ feet.

28. My watch says it is 5 : 30, but my watch is 10 minutes slow; so it must be ___.

29. I must be at school at 8 : 45. It takes me 5 minutes to get there; so I must leave home at ___.

30. If you wish to make 14 pieces of candy last for a week, you can eat ___ pieces each day.

Review

Find the difference between the numbers in each of these pairs: (Check your answers.)

1. 876 and 3457
2. 982 and 560
3. 800 and 480
4. 1207 and 463
5. 4580 and 7654
6. 832 and 1276
7. 5480 and 3299
8. 6320 and 5487
9. 8976 and 15324
10. 376 and 480
11. 297 and 899
12. 463 and 1276

Find these sums and check your answers:

13. \$4.89; \$3.64; \$5.48; \$4.00; \$5.97.
14. \$6.83; \$.07; \$.98; \$4.63; \$4.87; \$2.76.
15. \$.63; \$.87; \$.46; \$8.23; \$2.76; \$.09.
16. \$2.98; \$4.76; \$8.29; \$4.32; \$8.76; \$10.00.

Find the products: (Check by doing each example again.)

17. 27 times 98
18. 32 times 43
19. 4 times 5672
20. 7 times 9876

Find these quotients and remainders and check:

21.	**22.**	**23.**	**24.**	**25.**
8)6543	9)8763	6)5487	5)3825	7)7504

Give these answers quickly:

26. $9 + 7 = ?$
27. $9 \times ? = 36$
28. $27 \div ? = 3$
29. $8 \times ? = 48$
30. $? - 7 = 8$
31. $? \div 7 = 9$
32. $? - 9 = 8$
33. $16 + ? = 23$
34. $33 - 28 = ?$
35. $27 + ? = 34$
36. $9 \times ? = 54$
37. $? \div 9 = 9$

Two-Step Problems

1. Mary bought a half pound of butter that cost 64¢ a pound and a 15-cent box of crackers. In finding how much to pay for both articles, this is what she thought:

"There are *two* steps in this problem:

First step: If a pound of butter costs 64¢, a half pound of butter will cost ___.

Second step: If the butter costs ___¢ and the crackers cost 15¢, they both will cost ___."

2. Herbert bought a top for 15¢, a book for 39¢, and a knife for 45¢. He gave the clerk a dollar bill and was wondering how much change he should get. He thought:

"First, I must find how much all the things will cost. Then I must find how much change there will be." Work Herbert's problem for him.

3. Louise bought three yards of lace at 28¢ a yard and a 10-cent package of pins. She wondered how much she would have to pay for these things. She thought, "I must first find the cost of the ___; then I can find the cost of both things." Solve her problem for her.

4. Our milkman charges 12¢ a quart for milk. My mother ordered 5 gal. of milk for the church supper. She asked me how much I thought that would cost. Can you tell?

5. Yesterday Donald bought 35 copies of a magazine and sold all but 9 copies. He earns 3¢ on each magazine sold. How much did he earn yesterday?

6. Mrs. Martin wants to cover a box with oilcloth. She has measured the box with a ruler and finds she needs 6 ft. of oilcloth. At 49¢ a yard how much will the oilcloth that she needs cost?

A Page of Easy Problems

Read each problem, tell the steps to take in working it, then find the answer.

1. Grace has 15¢. She wonders how much change she will get if she buys a half pound of crackers that cost 24¢ a pound. Can you tell her?

2. Alice's mother made 2 lb. of fudge and 3 lb. of taffy for the church fair. The fudge sold for 80¢ a pound and the taffy for 40¢ a pound. The candy brought ___ all together.

3. Marie and four little friends are going to have a tea party. Marie bought a dozen oranges at 60¢ a dozen and a box of wafers for 15¢. The girls shared the cost equally; so each girl gave Marie ___¢.

4. Mary bought a quarter of a yard of ribbon that sold for 36¢ a yard, and a yard of ribbon that sold for 24¢ a yard. The clerk said, "Thirty-four cents, please." Mary said, "I think you've made a mistake." Had he?

5. Harry's father said to him: "Here is 50¢. Will you please get me 15 2-cent stamps and 20 1-cent stamps? You may keep the change." Harry laughed and said, "You can't fool me." Why did Harry say that?

6. There are to be 16 children at Esther's birthday party. A quart of ice cream serves 8 people and costs 50¢. The ice cream for the party will cost ___.

7. Esther had 25¢. She wanted to buy 2-cent whistles for favors for each of the children at her party. She told her mother she needed 8¢ more to buy the whistles. Did she?

Do you make the costumes
for your class plays?

Oral Drill

Do these examples orally:

	a	*b*	*c*
1.	$18 \div 5 = ?$	$49 \div 8 = ?$	$28 + ? = 34$
2.	$18 + ? = 23$	$21 \div 6 = ?$	$22 \div 8 = ?$
3.	$20 \div 7 = ?$	$4 \times 7 = ?$	$8 \times ? = 48$
4.	$5 \times 6 = ?$	$54 \div 6 = ?$	$35 \div 6 = ?$
5.	$48 + ? = 53$	$63 \div 8 = ?$	$11 \div 4 = ?$
6.	$70 \div 8 = ?$	$9 \times ? = 27$	$18 \div 8 = ?$
7.	$56 + ? = 62$	$5 \times 5 = ?$	$9 \times 5 = ?$
8.	$50 \div 7 = ?$	$56 \div 9 = ?$	$51 \div 9 = ?$
9.	$48 \div 6 = ?$	$48 \div 2 = ?$	$48 + ? = 54$
10.	$63 + ? = 71$	$30 \div 4 = ?$	$50 \div 9 = ?$
11.	$54 \div 8 = ?$	$9 \times ? = 36$	$6 \times 7 = ?$
12.	$28 \div 3 = ?$	$36 \div 2 = ?$	$52 \div 6 = ?$
13.	$36 + ? = 44$	$8 \times 7 = ?$	$5 \times ? = 40$
14.	$53 \div 7 = ?$	$6 \times 7 = ?$	$54 + ? = 61$
15.	$21 \div 9 = ?$	$49 \div 3 = ?$	$55 \div 8 = ?$

Write in figures the numbers:

16. *From* three hundred fifty thousand *to* three hundred fifty thousand, ten.

17. *From* three hundred ninety-five thousand, nine hundred ninety-four *to* three hundred ninety-six thousand.

18. *From* three hundred thousand, eight *to* three hundred thousand, twenty-two.

Two Sets of Practice

PRACTICE SET I

Do not use a pencil when you work these examples.

1. 7 / 6 / 5 / 4

2. 3 / 8 / 9 / 7

3. 5 / 4 / 6 / 8

4. 46 / 23 / 5

5. Subtract: 356 / 244

6. $7 \times 72 = ?$

7. $14 \times 6 = ?$

8. $35 - 14 = ?$

9. $4)848$

10. $6)372$

11. $8)280$

12. $4)283$

13. Mary spent 3 weeks and 3 days at her aunt's home last summer. How many days was she there?

14. At 5¢ each how many apples can you buy for 45¢?

15. Tell what words or numbers belong in the blanks on page 226.

PRACTICE SET II

You may use a pencil when you work these examples.

1. 456 / 897 / 568 / 395

2. 608 / 476 / 59 / 470

3. 745 × 7

4. 608 × 8

5. 672 − 548

6. 900 − 456

7. 654 − 378

8. 654 × 9

9. $7)4963$

10. $6)4944$

11. $7)3875$

12. $9)278$

13. Fred earned $1.19 one week and $.95 the next week. Did he earn enough money to buy a bicycle bell that cost 98¢ and a baseball that cost $1.29?

14. At 3¢ each how much will 17 plums cost?

Progress Test No. 1

In taking this test you need not copy the examples. Just write the answers on your test paper. Be sure to number each answer. *Never write answers anywhere in the book.* You may use scratch paper if you need to.

(Keep a record of your score on the Progress Test Record at the back of the book.)

1. Write in figures: four thousand, forty.

2.
$$\begin{array}{r} 26 \\ 84 \\ 39 \\ 56 \\ 28 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 2689 \\ 504 \\ 8286 \\ 984 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 28 \\ \times 34 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 7854 \\ \times 6 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 647 \\ -239 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 900 \\ -286 \\ \hline \end{array}$$

8. $9\overline{)2079}$ **9.** $7\overline{)226}$ **10.** $4\overline{)417}$

11. $\frac{1}{2}$ yd. = ___ in. **14.** 1 yr. = ___ da.

12. 1 gal. = ___ qt. **15.** 3 wk. = ___ da.

13. 1 bu. = ___ pk. **16.** $\frac{1}{4}$ lb. = ___ oz.

17. Jean is 7 years old. She cannot go to camp until she is 12 years old. She will have to wait ___ years before she can go.

Standards: X, 15. Y, 12. Z, 9.

CHAPTER II

FRACTIONS

Paying the Children*

(1) Mr. Landis hired some children to pick berries. He is ready to pay them, but he has only a twenty-dollar bill; so he must go to the bank for change. He has started to make the chart below so that he will know how many of each kind of coins to get. The chart shows that for John he needed ___ dollar, ___ dimes, and ___ cents.

(2) What two coins will he probably get for Mary to pay her the $.26 he owes her?

(3) Ask your teacher to let you copy the chart. Fill in the number of coins you think he will need for each child. After you have finished, find the total number of coins of each kind that Mr. Landis should get at the bank.

	Dollars	Half Dollars	Quarters	Dimes	Nickels	Cents
John K. $1.24	1			2		4
Mary D. $ .26						
Alice R. $ .56						
Ted B. $1.06						
James M. $ .75						
Billy C. $1.57						
Roy B. $2.35						
Larry G. $1.88						
Eddie K. $ .19						
Total						

Harold's Christmas Party

1. Harold is having a Christmas party. His mother gave him $2.00 with which to buy the favors for the party. There will be 8 boys at the party. How much can Harold spend for each favor?

(1) To find out, Harold thought, "For each favor I can spend $\frac{1}{8}$ of $2.00." He divided the $2.00 by 8, just as he would divide any other number by 8. Notice that he wrote the cents point in the quotient directly below the cents point in the dividend. He did not forget to write the dollar sign in the quotient.

$$\begin{array}{r} 8)\$2.00 \\ \$\ .25 \end{array}$$

(2) His work shows that he can spend ___ for each favor.

2. Harold's mother also gave him $1.50 with which to buy Christmas wreaths for the windows. He wants to buy 5 wreaths. How much can he spend for each wreath?

3. How much could Harold spend for each wreath if he had needed 6 wreaths? 7 wreaths? 8 wreaths? 9 wreaths?

Do the following divisions: (Check by multiplying.)

4. 8)$320	**9.** 6)$1.32	**14.** 9)$91.98	**19.** 8)$173.76
5. 9)$549	**10.** 7)$7.49	**15.** 8)$73.76	**20.** 7)$434.07
6. 7)$497	**11.** 8)$8.72	**16.** 7)$54.60	**21.** 9)$668.70
7. 9)$648	**12.** 9)$7.56	**17.** 6)$48.54	**22.** 6)$667.20
8. 8)$664	**13.** 8)$5.04	**18.** 8)$75.60	**23.** 9)$981.63

Oral Problems

1. If four children share equally the cost of a $1.00 box of candy, how much should each child pay?

2. Find the cost of three plants at 15¢ each.

3. How much change should you get from a quarter after buying three 4-cent pencils?

4. How much money would you need to buy a half-dozen bananas at 24¢ a dozen, and a 25-cent pineapple?

5. How much must you pay for $\frac{1}{8}$ yd. of velvet which sells for $4.00 a yard?

6. Find the cost of a dozen bars of soap at 8¢ a bar.

7. If you go to sleep at 8:00 P.M. and sleep until 7:00 A.M., how many hours will you have slept?

8. Sam spent 4¢ for a top, 3¢ for a whistle, 6¢ for a ball, 10¢ for marbles, and 5¢ for candy. How much did he spend for all?

9. How much must you pay for a 5-pound chicken at 40¢ a pound?

10. If it takes you 18 minutes to go from your home to Sunday school, at what time must you leave home so that you will reach Sunday school at 10:15?

11. Mrs. Jones paid 30¢ for a box containing a half-dozen apples. How much did each apple cost?

12. How much money do I need to buy a half yard of gingham at 28¢ a yard and a 12-cent card of buttons?

How to Solve Problems

Study each problem on this page and the next until you can answer the following questions without looking at the book:

(1) What does the problem ask you to find?

(2) What does the problem tell you?

(3) Would you add, subtract, multiply, or divide to find the answer?

Then look at the book and find the answer.

1. Marshmallows cost 30¢ a pound. How much must Mrs. Gray pay for 2 pounds?

2. Dorothy wants a hat which costs $4.00 and a pair of gloves costing $1.25. How much money does she need to buy both the hat and the gloves?

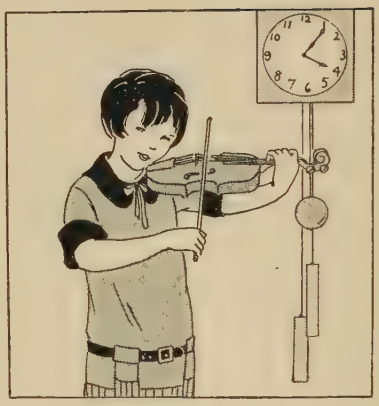
3. Tom is reading a book which contains 225 pages. He has read 169 pages. How many more pages has he to read?

4. In Tom's book Chapter XII is the last chapter. He has just finished Chapter VII. How many more chapters has he to read?

5. Mrs. Brown bought 2 qt. of milk at 12¢ a quart and a half-dozen eggs at 50¢ a dozen. How much did the milk and eggs cost her?

6. There are going to be 24 children at May's birthday party. A quart of ice cream serves 8 people. How many quarts of ice cream will be needed for the children?

7. May's mother wants to bake enough cakes so that each child may have two. How many cakes will that be?



8. Wire fencing sells for 40¢ a foot. What will 15 ft. cost?

9. Jean must practice her music lesson for 45 minutes. She started to practice at 25 minutes of 4. May she stop now? (Look at the picture.)

10. The Myers family uses 2 quarts of milk every day. If they pay 12¢ a quart, what is the cost of the milk they use each week?

11. Find the cost of $\frac{1}{4}$ lb. of nuts at 32¢ a pound and an 8-ounce box of candy which sells for 60¢ a pound.

12. Marie's father bought a piano for $550. He paid $275 as a first payment. How much did he still owe?

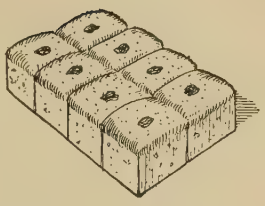
13. Jack has 5 chickens that he raised. If he sells them for $1.25 apiece, will he have enough money to buy a 6-dollar tennis racket?

14. How much must Jane pay for 2 yd. of 49-cent gingham, and a half-dozen buttons that sell for 30¢ a dozen?

15. If Christmas-tree balls are selling at 3 for 10¢, how many can you get for 30¢?

16. Find the cost of 2 doz. oranges at 4¢ apiece.

17. Find the cost of 6 bunches of carrots at 4¢ a bunch and a 39-cent watermelon.



1. My mother baked this nut cake this morning. She made it to be divided into ___ equal parts.

2. If I get one of the equal parts, I'll get $\frac{?}{8}$ of the cake.

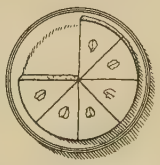
3. If I get three of the equal parts, I'll get $\frac{?}{8}$ of the cake. Show by pointing to the picture how much $\frac{3}{8}$ of the cake is.

4. If I get five of the equal parts, I'll get $\frac{?}{8}$ of the cake. Show by pointing how much $\frac{5}{8}$ of the cake is.

5. If I get seven of the equal parts, I'll get $\frac{?}{8}$ of the cake. Show by pointing how much $\frac{7}{8}$ of the cake is.

6. If I get eight of the equal parts, I'll get $\frac{?}{8}$ of the cake. Show by pointing how much $\frac{8}{8}$ of the cake is.

7. One day when my mother baked a cake like this, my sister ate $\frac{2}{8}$ of it. My mother said, "You've eaten $\frac{1}{4}$ of the cake." Point to $\frac{2}{8}$ of the cake. Is that the same as $\frac{1}{4}$ of the cake? There was $\frac{?}{4}$ of the cake left. There was $\frac{?}{8}$ of the cake left.



8. One day we ate $\frac{4}{8}$ of a cake. My mother said, "Now, you've eaten $\frac{1}{2}$ of that cake; don't eat any more." Point to $\frac{4}{8}$ of the cake; to $\frac{1}{2}$ of the cake. Is $\frac{4}{8}$ the same as $\frac{1}{2}$? If we ate $\frac{4}{8}$ of the cake, there was $\frac{?}{8}$ of the cake left. If we ate $\frac{1}{2}$ of the cake, there was $\frac{?}{2}$ of the cake left.

9. If we ate $\frac{7}{8}$ of a cake, there would be $\frac{?}{8}$ of the cake left.

10. If we ate $\frac{3}{8}$ of a cake, there would be $\frac{?}{8}$ of it left.

11. If I ate $\frac{8}{8}$ of a cake, there would be $\frac{?}{8}$ of the cake left.

12. If I ate $\frac{5}{8}$ of a cake, there would be $\frac{?}{8}$ of the cake left.

13. Numbers like $\frac{7}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{1}{4}$, $\frac{3}{4}$ are called fractions. Can you write and read some other fractions?

14. My mother baked this pie to serve eight people. It is cut in halves now. Into how many pieces must she cut each half? Does four eighths of the pie equal one half of the pie?

15. Can you tell how many eighths of the pie equal one fourth of the pie?

16. Three eighths of a pie and one eighth of a pie equal ___ eighths of a pie.

17. Five eighths of a pie and one eighth of a pie equal ___ fourths of a pie.

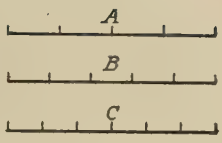
18. One fourth of a pie and one eighth of a pie equal ___ eighths of a pie.

19. One half of a pie and one eighth of a pie equal ___ eighths of a pie.

20. Mary ate one fourth of a pie and Jimmie ate one eighth of the pie. What part of the pie did they eat all together? If it was a whole pie when they started to eat it, what part of the pie was left?

21. Four children each ate one eighth of a pie. How much of the pie did they eat all together and how much of the pie was left?

22. There was five eighths of a pie in the pantry before Bobby ate one fourth of the whole pie. How much was left then?



1. Into how many equal parts is line A divided? line B? line C?

2. Each part of A is called $\frac{1}{?}$ of the line.

3. Each part of B is called $\frac{1}{?}$ of the line.

4. Each part of C is called $\frac{1}{?}$ of the line.

5. Can you show $\frac{3}{4}$ of line A? Can you show $\frac{3}{5}$ of line B? Can you show $\frac{3}{6}$ of line C? Can you show $\frac{5}{6}$ of line C?

6. This pie is divided into ___ equal parts. Each part is called one fourth. Draw a picture of a pie of which one fourth has been eaten. (You might draw the whole pie first, divide it into fourths, and erase $\frac{1}{4}$.)

7. Draw a pie and divide it into sixths. Now draw a picture of that pie after three sixths of it have been eaten. Then draw a picture of it after four sixths have been eaten.

8. Draw a line an inch long. Divide it into halves.

9. Now divide each half in the middle. Is the line now divided into fourths? A half of a half is a ___.

10. Now divide each fourth in the middle. Is the line now divided into eighths? A half of a fourth is an ___.

11. Draw a line a foot long. Divide it into halves.

12. Draw a line a foot long. Divide it into quarters. Draw a line $\frac{1}{2}$ ft. long; $\frac{3}{4}$ ft. long.

13. Draw a line a foot long. Divide it into thirds. Draw a line $\frac{1}{3}$ ft. long; $\frac{2}{3}$ ft. long.

Fractional Parts of Numbers

1. Here are 8 circles divided into 4 equal groups. Each

group contains one fourth of the 8 circles. One fourth of 8 circles is ___ circles.

2. $\frac{1}{4}$ of 8 is 2; $\frac{2}{4}$ of 8 is 2 times 2 or ___.

3. $\frac{3}{4}$ of 8 is 3 times 2 or ___.

4. $\frac{1}{8}$ of 24 is 3; $\frac{2}{8}$ of 24 is 2 times 3 or ___.

5. $\frac{3}{8}$ of 24 is ___; $\frac{4}{8}$ of 24 is ___; $\frac{5}{8}$ of 24 is ___.

6. $\frac{1}{6}$ of 48 is 8; $\frac{2}{6}$ of 48 is 2 times 8 or ___.

7. $\frac{3}{6}$ of 48 is ___; $\frac{4}{6}$ of 48 is ___; $\frac{5}{6}$ of 48 is ___.

8. $\frac{1}{5}$ of 25 is ___; $\frac{2}{5}$ of 25 is ___ times ___ or ___.

9. $\frac{3}{5}$ of 25 is ___; $\frac{4}{5}$ of 25 is ___; $\frac{5}{5}$ of 25 is ___.

10. $\frac{1}{7}$ of 21 is ___; $\frac{2}{7}$ of 21 is ___ times ___ or ___.

11. $\frac{3}{7}$ of 21 is ___; $\frac{4}{7}$ of 21 is ___; $\frac{5}{7}$ of 21 is ___.

12. $\frac{1}{8}$ of 40 is ___; $\frac{2}{8}$ of 40 is ___; $\frac{3}{8}$ of 40 is ___.

13. $\frac{5}{8}$ of 40 is ___; $\frac{6}{8}$ of 40 is ___; $\frac{7}{8}$ of 40 is ___.

14. $\frac{1}{6}$ of 36 is ___; $\frac{2}{6}$ of 36 is ___; $\frac{3}{6}$ of 36 is ___.

15. $\frac{1}{5}$ of 20 is ___; $\frac{2}{5}$ of 20 is ___; $\frac{3}{5}$ of 20 is ___.

16. $\frac{1}{9}$ of 36 is ___; $\frac{4}{9}$ of 36 is ___; $\frac{5}{9}$ of 36 is ___.

17. $\frac{1}{8}$ of 48 is ___; $\frac{3}{8}$ of 48 is ___; $\frac{5}{8}$ of 48 is ___.

18. $\frac{1}{7}$ of 49 is ___; $\frac{2}{7}$ of 49 is ___; $\frac{3}{7}$ of 49 is ___.

Fractional Parts

Elizabeth said to her mother, "They have delicious marshmallows at the store for 40¢ a pound. May I get some?"

Her mother said, "Yes, you may get a quarter of a pound."

(1) Elizabeth thought, "Since a pound of marshmallows costs 40¢, $\frac{1}{4}$ lb. will cost $\frac{1}{4}$ of 40¢, or ___¢."

When Elizabeth was starting out, her mother called to her, "Get $\frac{3}{4}$ of a pound, and I'll use some for a cake."

(2) Elizabeth thought, "I wonder how much $\frac{3}{4}$ lb. will cost. Well, $\frac{1}{4}$ lb. costs $\frac{1}{4}$ of 40¢, or 10¢, so $\frac{3}{4}$ lb. must cost three times as much, or 30¢." Was Elizabeth right?

1. To find $\frac{3}{8}$ of 16, I think: $\frac{1}{8}$ of 16 is ___; so $\frac{3}{8}$ of 16 is 3 times ___, or ___.

2. To find $\frac{5}{9}$ of 45, I think: $\frac{1}{9}$ of 45 is ___; so $\frac{5}{9}$ of 45 is ___ times ___, or ___.

3. $\frac{2}{3}$ of 12 = ?

4. $\frac{4}{5}$ of 20 = ?

5. $\frac{3}{7}$ of 21 = ?

6. $\frac{3}{5}$ of 35 = ?

7. $\frac{3}{8}$ of 40 = ?

8. $\frac{5}{6}$ of 36 = ?

9. $\frac{5}{8}$ of 40 = ?

10. $\frac{5}{6}$ of 24 = ?

11. $\frac{2}{5}$ of 25 = ?

12. $\frac{4}{7}$ of 28 = ?

13. $\frac{4}{7}$ of 21 = ?

14. $\frac{5}{9}$ of 63 = ?

15. $\frac{7}{9}$ of 54 = ?

16. $\frac{7}{8}$ of 56 = ?

17. $\frac{5}{8}$ of 72 = ?

18. Harry has 35¢. His father told him he should save $\frac{3}{5}$ of it. Harry thought, "$\frac{3}{5}$ of 35¢ is ___."

19. Two thirds of a yard of cheesecloth at 12¢ a yard will cost $\frac{2}{3}$ of 12¢, or ___.

20. Three eighths of a yard of dress goods at 40¢ a yard will cost $\frac{3}{8}$ of 40¢, or ___.

21. Three fourths of a yard of gingham at 40¢ a yard will cost ___.

Something New in Multiplication

(1) Ted is going to save stamps. His uncle sent him 12 stamp books. Each book has 5 pages, and there is room for 25 stamps on a page. Ted said, "Each book will hold 5×25, or ___, stamps, but I wonder how many stamps the 12 books will hold."

(2) His sister said: "That's easy to find out. You should multiply 125 by 12.

(3) "To do this you first multiply the 125 by the 2 of the 12 and write the product like this: ⟶

125
12
250

(4) "Then you multiply the 125 by the 1 of the 12 and write the product like this: ⟶

(5) "Adding, your answer looks like this: ⟶

125
12
250
125
1500

(6) "Now see if you can multiply 125 by 12 without looking at the explanation."

He checked the answer by going over the work; so he knew his 12 stamp books would hold 1500 stamps.

Study each of these examples; then do it yourself:

1.	**2.**	**3.**	**4.**	**5.**
313	248	165	320	149
17	14	62	36	54
2191	992	330	1920	596
313	248	990	960	745
5321	3472	10230	11520	8046

Multiply and check by doing each example again:

6.	**7.**	**8.**	**9.**	**10.**	**11.**
530	160	176	156	546	605
13	65	34	89	78	86

Practice in Multiplying

Multiply and check by doing each example again:

	a	*b*	*c*	*d*	*e*	*f*
1.	890	659	576	875	509	906
	67	48	49	94	67	87
2.	594	509	863	596	587	987
	85	76	79	87	69	59
3.	709	768	597	860	968	875
	49	39	28	29	79	89
4.	974	806	698	594	876	980
	×99	38	84	58	68	87

Dividing Money

5. If one plant costs 5¢, how many plants can be bought for $2.00?

Think: *One plant costs 5¢. $2.00 is 200¢. I can buy as many plants for $2.00 as there are 5's in 200.*

How many 5's are there in 200?

6. At 5¢ each how many plants can be bought for $1.00? $1.50? $1.75? $2.25? $3.00? $5.00?

7. At 9¢ each how many boxes of paints can be bought for $1.00? $1.50? $2.00? $2.29? $2.50?

8. At 6¢ each how many books can be bought for $1.00? $2.00? $3.00? $4.00? $5.00?

9. At 8¢ each how many whistles can be bought for $2.50? $4.00? $7.50? $8.25?

Review

Add and check:

1.	2.	3.	4.	5.	6.
5436	4760	407	909	$304.57	$705.50
782	500	60	7987	5.76	4.00
904	3	5467	598	40.04	74.09
5769	784	783	9876	4.40	69.88

Subtract and check:

7.	8.	9.	10.	11.	12.
700	480	924	827	$4.56	$9.00
456	367	896	658	2.90	.49

Multiply and check:

13.	14.	15.	16.	17.	18.
49	65	20	48	$6.04	$7.58
58	64	39	37	8	9

Divide and check:

19.	20.	21.	22.	23.	24.
5)195	5)636	9)720	8)$64.16	7)$49.50	8)$36.07

25. Choose from the above examples:

a dividend	a product	a subtrahend	a multiplicand
a divisor	a minuend	a quotient	a multiplier
a difference	a remainder	a sum	an addend

26. Tell the numbers that belong in these blank spaces:

1 mi. = ___ ft.	1 yr. = ___ da.	1 ton = ___ lb.
1 min. = ___ sec.	1 leap yr. = ___ da.	1 pk. = ___ qt.
1 lb. = ___ oz.	1 bu. = ___ pk.	1 gal. = ___ qt.

27. If I cut an apple into 4 equal parts and eat 3 of the equal parts, I have eaten $\frac{?}{4}$ of the apple and there is $\frac{?}{4}$ left.

28. If I cut a pie into 5 equal parts and eat 2 of the equal parts, I have eaten $\frac{?}{?}$ of the pie and there is $\frac{?}{?}$ left.

Notice that we sometimes say "$\frac{3}{5}$ *is* left" instead of "$\frac{3}{5}$ *are* left." That is because we do not think of each fifth separately like this or like this but we think of $\frac{3}{5}$ like this as a piece. So when we say $\frac{3}{5}$ *is* left we mean a $\frac{3}{5}$ piece *is* left.

29. $\frac{?}{?}$ of this circle is dark and $\frac{?}{?}$ is white.

30. $\frac{1}{5}$ of 20 is ___, $\frac{3}{5}$ of 20 is ___. $\frac{1}{6}$ of 36 is ___, $\frac{3}{6}$ of 36 is ___.

31. Tell the numbers that belong in these blank spaces:

a. L = ___. *d.* XL = ___. *g.* XCV = ___.
b. C = ___. *e.* LX = ___. *h.* XLIX = ___.
c. X = ___. *f.* XC = ___. *i.* XXXVII = ___.

32. How much change will you get from a 5-dollar bill if you buy a $2.49 doll?

33. Find the cost of a half-dozen towels at 89¢ each.

34. If seven men share $658 equally, each man will get ___ dollars.

35. Find the cost of a 30-cent chocolate cake and $\frac{1}{2}$ dozen eggs at 40¢ a dozen.

Review

1. Find the sum of four thousand, sixty-three and six thousand, four hundred ninety-seven.

2. Find the difference between three thousand, eight hundred four and seven thousand, five.

3. Find the product of seven thousand, four hundred fifty-nine and nine.

4. Find the quotient and remainder: four thousand, five hundred six divided by eight.

Work these examples:

5. $3553 - 498$	**11.** $4006 - 346$	**17.** $1314 - 580$
6. $545 + 2006$	**12.** 45×576	**18.** $6874 \div 5$
7. $8476 \div 9$	**13.** $9863 \div 6$	**19.** $4630 + 7593$
8. 23×684	**14.** $2576 - 1375$	**20.** 68×605
9. $787 + 779$	**15.** 37×463	**21.** $4738 \div 5$
10. $11258 - 4609$	**16.** $5400 - 2370$	**22.** $7584 \div 8$

23. Read:

a.	*b.*	*c.*	*d.*
40,040	4,400	40,400	400,004
40,004	4,040	440,004	440,400
4,004	4,044	404,000	404,404

24. Write in figures:

a. One thousand, six hundred ninety.
b. Five hundred five thousand, five.
c. Six hundred sixty-six thousand, sixty.
d. Sixty-seven thousand, six hundred seven.
e. Five hundred nine thousand, five hundred nine.

Progress Test No. 2

Write just the answers to these examples on your test paper. Number each answer. (Record your score on the Progress Test Record at the back of the book.)

1. Write in figures: four hundred four thousand, four.

2. 11 : 45 is the same as ___ minutes of ___.

3.
63
25
78
46
31

4.
2679
400
5432
2896

5.
416
× 14

6.
98
× 76

7.
5076
× 8

8.
508
− 359

9.
500
− 79

10. 3)77 **11.** 3)752 **12.** 9)$45.54 **13.** 8)6541

14. $\frac{1}{4}$ yd. = ___ in. **15.** $\frac{5}{6}$ of 54 = ___.

16. If a line is divided into 8 equal parts, each part is called one ___ of the line.

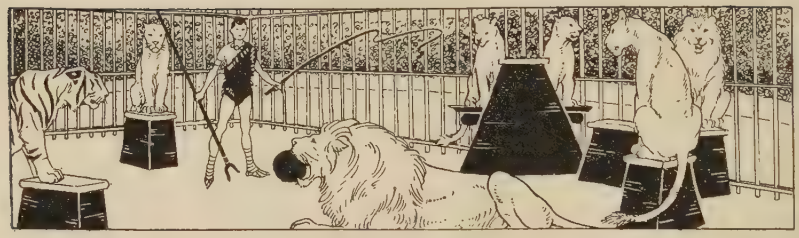
17. How much will 5 dozen eggs at 52¢ a dozen and a half pound of butter at 60¢ a pound cost?

Standards: X, 15. Y, 13. Z, 10.

CHAPTER III

PRACTICE WITH NUMBERS

The Circus *



1. Yesterday we all went to the circus. Guess how many persons it takes to run a circus. There were 27 persons doing tricks on rings and ropes and 63 other performers in the main tent. There were also 9 clowns. There were 17 men to tend the animals and 26 men to set up and take down tents. There were 11 men to sell tickets. There were 24 persons to be seen in the side shows. How many were there in all?

2. Guess how much it costs to feed 177 persons for a day. Suppose they ate three meals a day. How many meals is that? Suppose the meals cost 55¢ each. How much does it cost to feed all the people one day?

3. How many animals do you think there were? There were 5 elephants, counting the baby elephant, 9 tigers, 6 lions, 2 giraffes, a rhinoceros, a hippopotamus, 16 seals, 37 monkeys, 75 trick horses and ponies, 84 work horses, and 64 other animals. How many animals were there?

4. How much do you think it costs to feed all these animals for one day? It takes 24 bales of hay at $1.25 a bale, $28 worth of meat, and $18 worth of other food.

5. What does it cost to feed both people and animals for a day? How much for a week?

6. The price of admission to the circus is 75¢ for adults and 50¢ for children. How much did it cost for our family to go? My father and mother took me and my two brothers.

7. I counted 15 rows of seats and 24 seats in each row in the section in which we were sitting. How many people could sit in that section?

8. There were 13 other sections just like the one we were in. How many seats were there in the whole circus tent?

9. There were about 50 persons in our section eating peanuts. If as many persons in each of the 14 sections bought peanuts at 5¢ a bag, how much was spent for peanuts?

10. The lemonade that they sell at the circus costs 45¢ a gallon. They get 16 glasses of lemonade from a gallon. Selling it at 5¢ a glass, how much do they gain on one gallon of lemonade? on 5 gallons?

11. They buy their balloons for 90¢ a dozen and sell them for 10¢ each. How much do they gain on a dozen balloons? on 5 dozen?

12. The popcorn they sell for 5¢ a bag costs them 40¢ for a dozen bags. How much do they gain on a dozen bags? on 12 dozen bags?

13. I paid 5¢ for a bag of candy kisses. There were 10 kisses in the bag. Do you know how much each kiss cost me?

Number Practice

Give the sums as quickly as you can:

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
1.	12	13	30	24	13	33	17	25	11	21
	5	9	8	5	2	4	3	6	9	7
2.	16	18	16	18	28	26	17	34	26	47
	4	9	8	5	6	8	8	8	7	9
3.	46	40	29	30	19	26	43	34	39	36
	2	3	10	9	3	6	10	7	7	9

4. Tell the differences in the examples above.

5. Go back and give the products in the examples above.

6. Dividing the upper number by the lower number, give the quotient and the remainder in the examples above.

Add and check the sums:

7.	**8.**	**9.**	**10.**	**11.**
368	2540	652	9236	6946
9241	8376	3809	1485	8311
8865	904	5267	6372	2964
679	5637	8532	888	7008
5238	8892	920	4456	5464
6675	4267	4831	6379	4809

Add and check the sums:

12. 72; 8245; 367; 1836; 563; 8.

13. 3824; 758; 37; 9004; 358; 40.

Find the difference between:

14. 8791 and 8192

15. 877 and 1586

16. 95302 and 56431

17. 5498 and 13434

18. 11375 and 5763

19. 6980 and 9307

Adding and Subtracting Money

Add and check:

1.	2.	3.	4.	5.	6.	7.
$.89	$.76	$.87	$.58	$.69	$.49	$.07
.97	.89	.94	.67	.99	.38	.80
.38	.98	.69	.99	.95	.54	.90
.54	.78	.87	.88	.88	.76	.78
.76	.56	.98	.79	.79	.89	.87
.28	.34	.54	.68	.67	.65	.96

8.	9.	10.	11.	12.
$ 1.49	$ 2.46	$149.87	$119.41	$127.76
1.37	3.87	9.86	5.67	5.84
31.84	49.56	54.89	9.88	.63
25.67	.37	3.87	.96	9.98
14.38	3.58	5.00	8.04	54.76
16.64	49.63	6.00	189.76	165.06

Subtract and check:

	a	*b*	*c*	*d*	*e*
13.	$168.73	$198.56	$298.04	$456.84	$121.36
	54.98	145.67	176.96	36.54	49.75
14.	$134.46	$ 96.45	$ 46.76	$145.67	$167.32
	59.88	37.62	45.32	144.98	54.97
15.	$643.87	$463.29	$687.32	$678.30	$674.50
	598.43	187.67	568.79	498.75	39.98
16.	$846.37	$506.37	$705.68	$326.95	$354.03
	356.49	483.22	633.94	198.98	268.75
17.	$298.76	$536.87	$865.08	$406.35	$503.87
	169.04	200.43	763.99	76.45	96.48

Going to the Theater *

Theater Ticket Prices			
Afternoon		*Evening*	
First Floor . . .	$1.65	First Floor . . .	$2.20
First Balcony . .	1.10	First Balcony . .	1.65
Second Balcony . .	.55	Second Balcony . .	1.10

The 15 girls in our club are going to the theater next Saturday afternoon. We are going to buy the tickets with the money in our club savings. We have $24.50.

1. How much would the tickets for all of us cost if we sat in the second balcony? How much would we have left?

2. How much would all our tickets cost if we sat in the first balcony? How much would we have left?

3. How much would it cost us if we sat on the first floor? Would we have enough to buy those tickets?

4. There are 12 boys in my brother's club. They went to the theater last Saturday evening and sat in the first balcony. Their tickets cost ___.

5. They wanted to sit on the first floor, but if they had done so their tickets would have cost ___.

Multiply and check by going over your work:

6.	**7.**	**8.**	**9.**	**10.**	**11.**
$2.75	$3.84	$6.78	$5.60	$4.73	$5.76
16	19	17	18	15	24

12.	**13.**	**14.**	**15.**	**16.**	**17.**
$4.80	$6.70	$5.05	$7.04	$3.72	$5.60
35	69	98	76	45	76

Measurement

If you need help in the work on this page, look at the tables on page 227.

1. Tell the larger amount in each of these groups:

a. 2 yd., 7 ft.
b. 4 gal., 18 qt.
c. 12 dimes, 5 quarters.
d. $\frac{3}{4}$ hr., 40 min.
e. 5 bu., 22 pk.
f. 1 mo., 6 wk.

2. Tell how these blank spaces should be filled:

a. 6 qt. = ___ pt.
b. 9 wk. = ___ da.
c. 8 pk. = ___ bu.
d. 5 dimes = ___ quarters.
e. 7 yr. = ___ mo.
f. 4 hr. = ___ min.

3. If I owe you 23¢, I might give you any of these:

a. 23 pennies, *b.* 4 nickels and ___ pennies,
c. a dime, ___ nickels, and 3 pennies, or
d. ___ dimes and ___ pennies.

4. If I owe you 52 cents, I might give you 52 pennies. Can you name five other groups of coins I might give you?

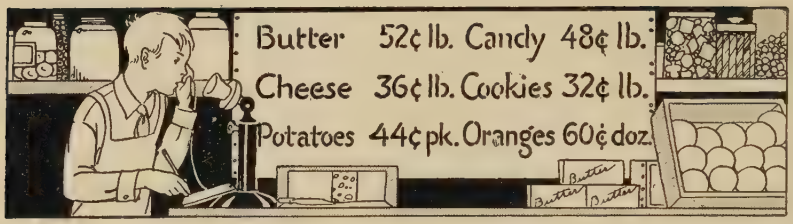
5. I owe you 99¢. Can you name seven groups of coins I might give you?

6. If you cut a yard of ribbon into 3 equal parts, and keep 1 of the parts, you are keeping one ___ of the yard. If you keep 2 of the equal parts, you are keeping ___ ___ of the yard.

7. If you divide a peck of potatoes into 4 equal parts, and keep one of the equal parts, you are keeping ___ ___ of the peck of potatoes. If you keep 3 of the equal parts, you are keeping ___ ___ of the peck of potatoes.

8. A quart of milk is ___ ___ of a gallon of milk.

At the Grocery Store *



1. Roy works in this store. What shall he charge for:

a. $\frac{1}{2}$ lb. butter?
b. $\frac{1}{4}$ lb. butter?
c. $\frac{3}{4}$ lb. cheese?
d. $\frac{1}{2}$ pk. potatoes?
e. $\frac{1}{8}$ lb. candy?
f. $\frac{3}{8}$ lb. candy?
g. $\frac{5}{8}$ lb. cookies?
h. $\frac{7}{8}$ lb. cookies?
i. $\frac{1}{4}$ doz. oranges?
j. $\frac{2}{3}$ doz. oranges?
k. $\frac{1}{2}$ doz. oranges?
l. $\frac{3}{4}$ pk. potatoes?

2. How much change should Roy give from 50¢ after a purchase of each of the things in Examples *a* to *l*?

3. Here are some orders that Roy filled. Can you find any mistakes in what he charged for them?

a.

1 lb. butter	$.52
$\frac{1}{2}$ lb. cheese	.18
$\frac{3}{8}$ lb. candy	.16
	$.86

b.

4 lb. cheese	$1.24
2 doz. oranges	1.20
$\frac{1}{2}$ lb. cookies	.16
	$2.60

c.

$\frac{1}{2}$ doz. oranges	$.30
$\frac{1}{2}$ lb. cookies	.16
	$.46

d.

$\frac{3}{4}$ lb. cheese	$.27
$\frac{1}{2}$ pk. potatoes	.22
	$.59

e.

$\frac{3}{8}$ lb. candy	$ .18
2 doz. oranges	1.20
	$1.38

f.

$\frac{3}{4}$ pk. potatoes	$.30
$\frac{5}{8}$ lb. cookies	.20
	$.50

A Page of Practice

PRACTICE SET I (*Oral*)

1. 4, 5, 9, 6, 8, 7

2. 3, 4, 8, 7, 9, 6

3. 5, 4, 6, 8, 5, 9

4. 79×8

5. 67×9

6. $5\overline{)245}$

7. $890 - 254$

8. $65 \div 9 = ?$

9. $77 \div 8 = ?$

10. $\frac{3}{4}$ of $16 = ?$

11. $\frac{4}{5}$ of $30 = ?$

12. $\frac{5}{6}$ of $30 = ?$

13. $9\overline{)1872}$

14. $9 + 5 + 7 = ?$

15. 24 qt. = ? gal.

16. If gingham costs 40¢ a yard, what is the cost of $\frac{3}{4}$ yd.?

PRACTICE SET II (*Written*)

1. 357, 689, 58, 607, 56

2. 897, 654, 183, 5, 76

3. $4000 - 2986$

4. $5234 - 4867$

5. 46×57

6. 57×34

7. $8\overline{)6465}$

8. $9\overline{)6489}$

9. $7\overline{)5082}$

10. At 49¢ a set find the cost of 8 sets of toy dishes.

11. One afternoon Harold's father asked him to pull weeds in the garden for an hour. He started to work at 2 : 25 P.M. At 3 : 05 P.M. he said, "I've worked $\frac{2}{3}$ of the time I'm supposed to work." Had he? How many minutes had he worked?

12. Donald saw this sign, "$\frac{1}{8}$ mi. to Benton." He thought, "Benton is only ___ ft. from here."

Multipliers Ending in Zero

1. Complete these examples:

a. $10 \times 9 =$ *b.* $10 \times 14 =$ *c.* $10 \times 11 =$ *d.* $10 \times 12 =$

To multiply a number by **10,** *put a zero after the number.*

2. Multiply each of these numbers by 10:

14 29 43 69 37 84 120 256

3. Write the answers to these examples in multiplication:

36	28	54	67	92	128	240	356	400
10	10	10	10	10	10	10	10	10
360	280							

4. Complete these examples:

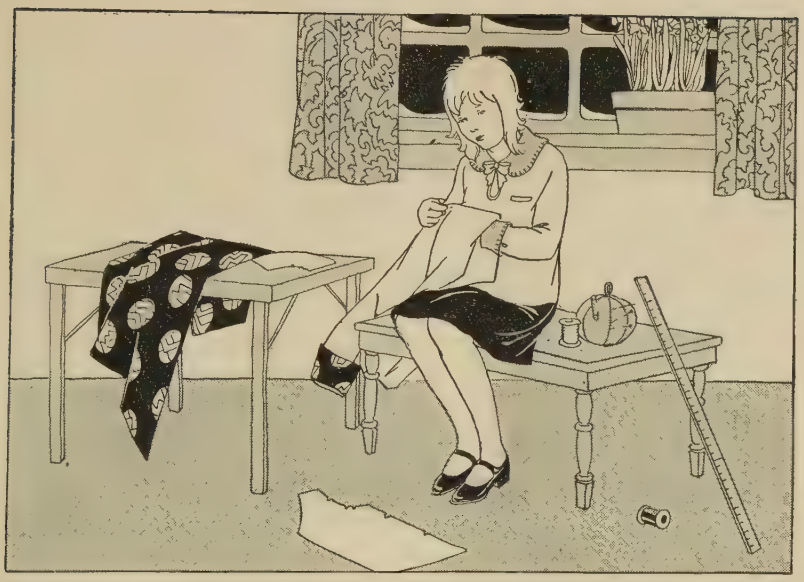
$100 \times 4 =$ $100 \times 11 =$ $1000 \times 6 =$ $1000 \times 15 =$

$100 \times 8 =$ $100 \times 12 =$ $1000 \times 9 =$ $1000 \times 21 =$

To multiply a number by **100,** *put* **2** *zeros after the number.*
To multiply a number by **1000,** *put* **3** *zeros after the number.*

Write the answers to these examples in multiplication:

	a	*b*	*c*	*d*	*e*	*f*
5.	27	65	83	52	40	116
	100	1000	100	1000	100	1000
	2700	65000				
6.	128	384	269	190	843	900
	100	1000	100	100	1000	1000
7.	24	32	67	96	124	273
	20	30	20	40	50	60
	480	960				
8.	64	58	96	84	99	89
	200	300	700	3000	2000	4000
	12800					



1. Mary wants to find how much the gingham for her dress will cost. She knows that a yard of gingham costs 35¢. What else must she know?

2. Mary wants to find how much the white linen for the collar and cuffs of her dress will cost. She knows that she needs a quarter of a yard of it. What else must she know?

3. The buttons she chose for her dress cost 40¢ a dozen. She needs only 6 buttons. How can she find out how much the 6 buttons will cost?

4. She wants to turn up a 4-inch hem and to have her dress 36 inches long when finished. How can she find out how long to cut her dress?

5. Go back and find the answers to Problems 3 and 4.

Multiplication Practice

Multiply:

1. 648 by 65; by 78; by 93; by 42; by 80.

2. 796 by 93; by 28; by 35; by 46; by 70.

3. 537 by 84; by 27; by 53; by 91; by 600.

4. 289 by 59; by 68; by 73; by 94; by 8000.

5. Go over each of these multiplication examples and then see if you can do them without looking at the book:

a.	*b.*	*c.*	*d.*
273	273	273	354
6	36	236	165
1638	1638	1638	1770
	819	819	2124
	9828	546	354
		64428	58410

6. Copy and complete these multiplications:

a.	*b.*	*c.*	*d.*
615	847	589	389
428	632	357	562
4920	1694	??23	??8
???0	???1	???5	???4
???0	??82	????	????
????20	????04	?????3	?????8

Multiply and check by doing each example again:

	a	*b*	*c*	*d*	*e*	*f*
7.	356	376	897	703	670	854
	214	243	543	854	543	327

8.	586	876	297	874	495	487
	240	3400	5400	325	543	6200

Practice in Division

Divide and check:

1. $9.03 ÷ 7	**5.** $43.28 ÷ 8	**9.** $19.38 ÷ 6
2. $8.64 ÷ 6	**6.** $28.80 ÷ 9	**10.** $35.42 ÷ 7
3. $9.25 ÷ 5	**7.** $95.72 ÷ 4	**11.** $82.68 ÷ 6
4. $7.52 ÷ 8	**8.** $82.74 ÷ 7	**12.** $58.64 ÷ 8

Divide each of these numbers by 3, 4, 5, 6, 7, 8, and 9, giving the quotients and remainders:

13. 59	**16.** 28	**19.** 58	**22.** 327	**25.** 4868
14. 67	**17.** 94	**20.** 57	**23.** 419	**26.** 8253
15. 48	**18.** 56	**21.** 52	**24.** 316	**27.** 3090

28. Ted's father has an automobile. Last Saturday the family went for a trip. Before they started, the speedometer read 2998 miles. When they got home, it read 3082. Ted said, "We have gone ___ miles."

29. To drive the 84 miles took 3 hours. Ted said to his mother, "We went 28 miles an hour." Was he right?

30. Before they started, Ted measured the gasoline. There were 8 gallons in the tank. He measured it again when they got back, and there were 4 gallons left. How much gasoline did they use on the trip?

31. Ted said: "Daddy, we used 4 gallons of gasoline to go 84 miles. How far could we go on one gallon?" Can you answer Ted's question?

32. Gasoline sells for 20¢ a gallon. Besides buying the gasoline for the trip, Ted's father spent 50¢ for oil and $2.25 for repairs on the car; so he spent ___ for the trip.

1. Using your ruler, draw a line 1 inch long. Now draw lines of these lengths: $\frac{7}{8}$ in.; $\frac{3}{4}$ in.; $\frac{5}{8}$ in.; $\frac{1}{2}$ in.; $\frac{3}{8}$ in.; $\frac{1}{4}$ in.; $\frac{1}{8}$ in.

2. Which is longer, $\frac{3}{8}$ in. or $\frac{1}{4}$ in.? $\frac{3}{8}$ in. or $\frac{3}{4}$ in.? $\frac{5}{8}$ in. or $\frac{1}{2}$ in.? $\frac{5}{8}$ in. or $\frac{3}{4}$ in.? $\frac{1}{4}$ in. or $\frac{2}{8}$ in.?

3. How many inches are there in $\frac{1}{2}$ yd.? in $\frac{1}{4}$ yd.? Which is longer, $\frac{1}{2}$ yd. or $\frac{1}{4}$ yd.?

4. How many ounces are there in $\frac{1}{8}$ of a pound? in $\frac{1}{4}$ of a pound? Which is more, $\frac{1}{8}$ of a pound or $\frac{1}{4}$ of a pound?

5. How many ounces are there in $\frac{1}{4}$ of a pound? in $\frac{3}{8}$ of a pound? Which is less, $\frac{3}{8}$ of a pound or $\frac{1}{4}$ of a pound?

6. How many inches are there in $\frac{1}{2}$ ft.? in $\frac{1}{6}$ ft.? Which is longer, $\frac{1}{2}$ ft. or $\frac{1}{6}$ ft.?

7. How many inches are there in $\frac{1}{3}$ ft.? $\frac{1}{4}$ ft.? $\frac{3}{4}$ ft.? $\frac{2}{3}$ ft.? $\frac{5}{6}$ ft.?

8. Draw a line $\frac{7}{8}$ in. long; $1\frac{7}{8}$ in. (one and seven-eighths inches) long; $2\frac{7}{8}$ in. long; $3\frac{7}{8}$ in. long.

9. Draw a line $\frac{3}{4}$ in. long; $1\frac{3}{4}$ in. long; $2\frac{1}{2}$ in. long; $4\frac{5}{8}$ in. long.

10. Draw a line on the blackboard $1\frac{1}{2}$ ft. long; $2\frac{3}{4}$ ft. long; $2\frac{2}{3}$ ft. long.

11. Draw a line $1\frac{1}{2}$ yd. long; $1\frac{1}{4}$ yd. long; $2\frac{1}{3}$ yd. long.

12. My mother was at a bargain sale. She saw two pieces of the same kind of material. The one piece was marked $4\frac{3}{4}$ yd., the other $4\frac{7}{8}$ yd. She said to the clerk, "I'll take the larger piece." Which piece did she want?

Yes or No

Tell whether it is true or not true that:

1. $\frac{1}{4}$ yd. = 9 in.
2. $\frac{3}{4}$ yd. = 27 in.
3. $\frac{3}{8}$ lb. = 2 oz.
4. $\frac{5}{8}$ lb. = 10 oz.
5. $\frac{1}{3}$ yd. = 1 ft.
6. $1\frac{1}{4}$ ft. = 16 in.
7. $2\frac{1}{2}$ ft. = 30 in.
8. $1\frac{1}{4}$ yd. = 40 in.
9. $1\frac{3}{4}$ ft. = 20 in.
10. $1\frac{1}{2}$ yd. = $4\frac{1}{2}$ ft.
11. 2 ft. 9 in. = $2\frac{3}{4}$ ft.
12. $\frac{1}{6}$ ft. is less than $\frac{1}{2}$ ft.
13. $\frac{7}{8}$ in. is less than $\frac{5}{8}$ in.
14. $\frac{3}{8}$ lb. is more than $\frac{3}{4}$ lb.
15. 1 ft. 6 in. = $1\frac{1}{4}$ ft.
16. 1 ft. 3 in. = $1\frac{1}{2}$ ft.
17. 1 lb. 4 oz. = $1\frac{1}{4}$ lb.
18. 2 lb. 8 oz. = $2\frac{1}{4}$ lb.
19. 2 lb. 12 oz. = $2\frac{3}{4}$ lb.
20. 1 yd. 2 ft. = $1\frac{2}{3}$ yd.
21. $1\frac{1}{8}$ lb. is more than $1\frac{1}{4}$ lb.
22. $2\frac{1}{2}$ yd. is more than $2\frac{1}{8}$ yd.

23. Four quarters of a pie, that is, $\frac{4}{4}$ of a pie, equals a whole pie.

24. Five quarters of a pie, that is, $\frac{5}{4}$ of a pie, equals one and one-fourth pies.

25. $\frac{7}{8}$ of a pie is more than a whole pie.

26. $\frac{8}{8}$ of a pie is more than a whole pie.

27. $\frac{9}{8}$ of a pie is more than a whole pie.

28. Three halves of a pie, that is, $\frac{3}{2}$ of a pie, is one and one-half pies.

29. Two pounds nine ounces is less than two and one-half pounds.

30. $1\frac{1}{4}$ ft. is less than $1\frac{1}{2}$ ft.

31. Six halves of a pie, that is, $\frac{6}{2}$ of a pie, is the same as three whole pies.

32. Nine fourths of a pie is less than two whole pies.

Fractional Parts of a Number

Tell the answers to these examples by rows, not by columns:

	a	*b*	*c*	*d*
1.	$\frac{1}{2}$ of 8 =	$\frac{1}{2}$ of 18 =	$\frac{1}{2}$ of 28 =	$\frac{1}{2}$ of 52 =
2.	$\frac{1}{3}$ of 12 =	$\frac{1}{3}$ of 27 =	$\frac{1}{3}$ of 39 =	$\frac{1}{3}$ of 72 =
3.	$\frac{1}{4}$ of 16 =	$\frac{1}{4}$ of 40 =	$\frac{1}{4}$ of 68 =	$\frac{1}{4}$ of 136 =
4.	$\frac{1}{5}$ of 25 =	$\frac{1}{5}$ of 55 =	$\frac{1}{5}$ of 85 =	$\frac{1}{5}$ of 255 =
5.	$\frac{1}{6}$ of 12 =	$\frac{1}{6}$ of 18 =	$\frac{1}{6}$ of 72 =	$\frac{1}{6}$ of 174 =
6.	$\frac{1}{7}$ of 21 =	$\frac{1}{7}$ of 714 =	$\frac{1}{7}$ of 350 =	$\frac{1}{7}$ of 567 =
7.	$\frac{1}{8}$ of 56 =	$\frac{1}{8}$ of 480 =	$\frac{1}{8}$ of 7208 =	$\frac{1}{8}$ of 400 =
8.	$\frac{1}{9}$ of 72 =	$\frac{1}{9}$ of 810 =	$\frac{1}{9}$ of 7209 =	$\frac{1}{9}$ of 5427 =
9.	$\frac{1}{2}$ of 48 =	$\frac{1}{6}$ of 48 =	$\frac{1}{8}$ of 48 =	$\frac{1}{4}$ of 48 =

Tell what you think as you do these examples:

	a	*b*	*c*	*d*
10.	$\frac{1}{4}$ of 8 = ? $\frac{3}{4}$ of 8 = ?	$\frac{1}{7}$ of 28 = ? $\frac{2}{7}$ of 28 = ?	$\frac{1}{5}$ of 25 = ? $\frac{3}{5}$ of 25 = ?	$\frac{1}{9}$ of 18 = ? $\frac{2}{9}$ of 18 = ?
11.	$\frac{1}{5}$ of 10 = ? $\frac{2}{5}$ of 10 = ?	$\frac{1}{8}$ of 24 = ? $\frac{3}{8}$ of 24 = ?	$\frac{1}{5}$ of 25 = ? $\frac{4}{5}$ of 25 = ?	$\frac{1}{3}$ of 18 = ? $\frac{2}{3}$ of 18 = ?
12.	$\frac{1}{8}$ of 32 = ? $\frac{5}{8}$ of 32 = ?	$\frac{1}{5}$ of 30 = ? $\frac{3}{5}$ of 30 = ?	$\frac{1}{9}$ of 27 = ? $\frac{5}{9}$ of 27 = ?	$\frac{1}{7}$ of 35 = ? $\frac{5}{7}$ of 35 = ?
13.	$\frac{1}{6}$ of 36 = ? $\frac{5}{6}$ of 36 = ?	$\frac{1}{8}$ of 40 = ? $\frac{7}{8}$ of 40 = ?	$\frac{1}{8}$ of 48 = ? $\frac{7}{8}$ of 48 = ?	$\frac{1}{6}$ of 54 = ? $\frac{5}{6}$ of 54 = ?
14.	$\frac{1}{7}$ of 42 = ? $\frac{3}{7}$ of 42 = ?	$\frac{1}{9}$ of 36 = ? $\frac{4}{9}$ of 36 = ?	$\frac{1}{4}$ of 48 = ? $\frac{3}{4}$ of 48 = ?	$\frac{1}{7}$ of 63 = ? $\frac{4}{7}$ of 63 = ?

Number Series

Notice that the first row of numbers goes by 3's. The next row begins at 5 but goes by 8's (5 and 8 are 13, and 8 are 21, etc.). Think what numbers should go under the other letters out to *K*. Do the same for the other rows.

	A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*K*
I.	10	13	16	19	22	25	28	31	34	37	40
II.	5	13	21	29	37	—	—	—	—	—	—
III.	57	157	257	357	—	—	—	—	—	—	—
IV.	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	—	—	—	—
V.	$\frac{1}{3}$	$\frac{2}{3}$	1	$1\frac{1}{3}$	—	—	—	—	—	—	—
VI.	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	—	—	—	—	—	—
VII.	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$	—	—	—	—	—	—	—	—
VIII.	$12\frac{1}{2}$	13	$13\frac{1}{2}$	—	—	—	—	—	—	—	—
IX.	$9\frac{1}{2}$	$9\frac{3}{4}$	10	$10\frac{1}{4}$	—	—	—	—	—	—	—
X.	$15\frac{2}{3}$	16	$16\frac{1}{3}$	—	—	—	—	—	—	—	—

Review

1. Find the sum of 14,564; 8,920; 47; and 3.
2. Find the difference between 4763 and 5009.
3. What is the product of 1672 and 240?
4. 22,330 is the dividend. 7 is the divisor. What is the quotient?
5. What is the product of 987 and 543?
6. Write in Roman numerals: 43; 92; 65.
7. Find the sum of 67, 54, 89, 20, 46, 35, 49.
8. Find $\frac{5}{8}$ of 40; $\frac{3}{8}$ of 32; $\frac{7}{8}$ of 56; $\frac{7}{8}$ of 72.
9. How many ounces are there in $1\frac{1}{2}$ lb.? $2\frac{1}{4}$ lb.? $1\frac{3}{4}$ lb.?
10. How many inches are there in $\frac{1}{4}$ yd.? $1\frac{1}{2}$ ft.? $1\frac{1}{4}$ yd.?

Oral Practice

Can you find 9 mistakes in these divisions?

	a	*b*	*c*	*d*	*e*	*f*
1.	5)38 7 r3	9)78 8 r6	4)6 1 r2	5)37 7 r2	3)22 7 r1	5)41 8 r1
2.	7)57 7 r8	8)29 3 r5	5)44 8 r4	9)56 6 r3	7)19 2 r5	8)17 1 r9
3.	4)7 1 r3	8)36 4 r4	2)17 7 r3	4)26 8 r2	6)34 5 r4	8)25 3 r1
4.	6)16 2 r4	9)85 9 r3	6)28 4 r4	8)76 9 r4	9)47 5 r2	6)33 5 r3
5.	9)86 9 r5	5)8 1 r3	8)18 2 r2	5)42 8 r2	6)13 1 r7	8)77 9 r5
6.	5)32 5 r7	6)47 7 r5	5)17 3 r2	7)58 8 r2	7)65 8 r2	7)47 6 r5

Practice with Facts

7. 4000 lb. = ? tons.

8. 30 sec. = ? min.

9. 1 mi. = ? ft.

10. $\frac{1}{4}$ hr. = ? min.

11. $\frac{1}{4}$ min. = ? sec.

12. 1 yr. = ? da.

13. 5 yr. = ? mo.

14. $\frac{1}{8}$ lb. = ? oz.

15. 32 qt. = ? gal.

16. $\frac{7}{8}$ lb. = ? oz.

17. LX = ?

18. 4 da. = ? hr.

19. 4 yd. = ? in.

20. $\frac{3}{4}$ lb. = ? oz.

21. 1 leap year = ? da.

22. 2 yr. = ? wk.

23. 8 bu. = ? pk.

24. 32 qt. = ? pk.

25. 1 lb. 6 oz. = ? oz.

26. $1\frac{1}{2}$ lb. = ? oz.

Learning to Be Accurate

Do you check every example that you work? Remember that is the best way for you to be sure your work is correct. Check your work, even though the book or your teacher does not tell you to.

1. Find the sum of \$469.24, \$32.98, \$654.79, and \$5.68.

2. Find the difference between \$945.50 and \$327.25.

3. Find the product of 79 and 67.

4. Find the quotient when 9 is the divisor and 1872 is the dividend.

5.
$$\begin{array}{r} 670 \\ 459 \\ 28 \\ 765 \\ 97 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 80{,}000 \\ -\ 76{,}985 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 68 \\ \times\ 56 \\ \hline \end{array}$$

8. $7\overline{)1527}$

9. $9 + 5 + 7 = ?$

10. $1675 \div 8 = ?$

11. Find the cost of 4 doz. bananas at 28¢ a dozen.

12. This box of fancy apples sells for 50¢. If you buy it, about how much are you paying for each apple?

13. Mrs. Snyder wants to make fruit salad. She bought $\frac{1}{2}$ doz. oranges at 60¢ a dozen, 3 grapefruit at 12¢ each, and 2 lb. of grapes at 18¢ a pound. How much did all the fruit for the salad cost her?

14. A recipe called for $\frac{3}{4}$ lb. of brown sugar. Mrs. Good weighed the sugar she had and found it weighed 6 oz. Had she enough?

15. Find the cost of $\frac{3}{4}$ yd. of ribbon at 48¢ a yard.

16. If 6 men share \$174 equally, what part of the money should each man get? How many dollars is that?

Sharing

(1) Tom took two cookies from the cooky jar and went out to play. As he was stepping out of the house he met Harry and Jack, and of course wanted to share the cookies with them. He was puzzled to know what part of a cooky he ought to give each boy so that all three of them would have the same amount. If you had been Tom, what part of a cooky would you have given each boy?

(2) This is the way Jack suggested sharing them. He said: "Break one cooky into three equal parts like this. If we each take one of those pieces, we'll each have one ___ of a cooky. Take the other cooky and do the same thing. Then we'll each have another third of a cooky."

(3) If they do as Jack suggested, how many thirds of a cooky will each boy get? Do you think that is a good way for the boys to share the cookies?

(4) If two cookies are shared by 3 boys, each boy gets $\frac{?}{3}$ of a cooky.

$$2 \div 3 = \frac{2}{3}$$

(5) If three cookies are shared by four boys, each boy gets $\frac{1}{?}$ of the first cooky; $\frac{1}{?}$ of the second cooky; and $\frac{1}{?}$ of the third cooky. Then each boy must get $\frac{3}{4}$ of a cooky.

$$3 \div 4 = \frac{3}{4}$$

More Sharing

1. Ethel wants to divide four chocolate bars among five girls. Draw a picture to show how she should divide each chocolate bar. What part of each chocolate bar will each girl get? How much chocolate will each girl get all together? $4 \div 5 = ?$

2. If you have 7 apples to divide among 8 girls, what part of an apple will each girl get? $7 \div 8 = ?$

3. If you have 3 oranges to divide among 5 boys, how much orange will each boy get? $3 \div 5 = ?$

4. If 5 cakes are shared by 8 persons, each person will get what part of a cake? $5 \div 8 = ?$

5. What part of a melon would you give to each of 7 persons if you have 3 melons? $3 \div 7 = ?$

6. If you divide 2 pies equally among 7 persons, each person will get how much pie? $2 \div 7 = ?$

7. If you divide 3 inches into 4 equal parts, how long is each part?

8. If you divide 2 yards into 3 equal parts, each part is ___ of a yard.

Answer these questions quickly:

9. $2 \div 3 = ?$ **11.** $5 \div 6 = ?$ **13.** $3 \div 4 = ?$

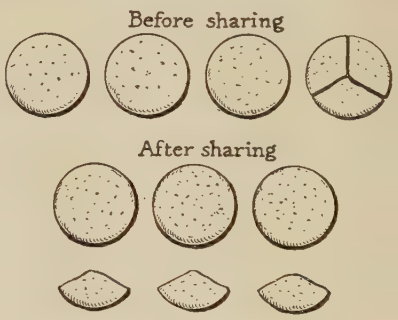
10. $4 \div 5 = ?$ **12.** $? \div 8 = \frac{7}{8}$ **14.** $3 \div ? = \frac{3}{7}$

15. Does $3 \div 4$ equal $\frac{3}{4}$ or $\frac{4}{3}$? **18.** $1 \div 3 = ?$

16. Does $2 \div 3$ equal $\frac{2}{3}$ or $\frac{3}{2}$? **19.** $1 \div 2 = ?$

17. $? \div ? = \frac{5}{7}$ **20.** $1 \div 1 = ?$

(1) Alice had 4 cakes of taffy to divide equally among 3 girls. How many cakes would you have given each one? Would each girl get more than one cake?



(2) Alice gave each of the 3 girls one cake, and there was ___ cake left over.

(3) Then she divided the cake that was left into 3 equal parts, and gave each of the girls one of the parts. Each of the parts was $\frac{1}{3}$ of a cake.

(4) Each girl got one cake and one third of a cake. Four divided by three equals one and one third. $4 \div 3 = 1\frac{1}{3}$.

(5) If you are dividing 5 cookies among 3 persons, will each one get a whole cooky? more than a whole cooky? How much more than a whole cooky? Notice that the lower number of the fraction is the same number as the divisor.

$3\overline{)5}$ $1\frac{2}{3}$

(6) If you are dividing 5 apples among 4 boys, will each one get a whole apple? more than a whole apple? How much more than a whole apple?

$4\overline{)5}$ $1\frac{1}{4}$

To divide 7 by 5, we think, "5 in 7, 1 time and 2 over." We write the 2 over the 5 in the quotient like this :——→

$5\overline{)7}$ $1\frac{2}{5}$

To divide 11 by 4, we think, "4 in 11, 2 times and 3 over." We write the 3 over the 4 in the quotient as shown below.

Third-Grade Way	Fourth-Grade Way
$4\overline{)11}$ 2 r3	$4\overline{)11}$ $2\frac{3}{4}$

Division

Study these divisions. Then copy them without the answers, and do them without looking at the book. See how many you have correct. If any are wrong, do them again.

1. $3\overline{)4}$ $1\frac{1}{3}$	**5.** $4\overline{)5}$ $1\frac{1}{4}$	**9.** $4\overline{)9}$ $2\frac{1}{4}$	**13.** $4\overline{)17}$ $4\frac{1}{4}$
2. $7\overline{)8}$ $1\frac{1}{7}$	**6.** $3\overline{)5}$ $1\frac{2}{3}$	**10.** $2\overline{)9}$ $4\frac{1}{2}$	**14.** $6\overline{)19}$ $3\frac{1}{6}$
3. $7\overline{)9}$ $1\frac{2}{7}$	**7.** $2\overline{)3}$ $1\frac{1}{2}$	**11.** $5\overline{)12}$ $2\frac{2}{5}$	**15.** $5\overline{)21}$ $4\frac{1}{5}$
4. $5\overline{)7}$ $1\frac{2}{5}$	**8.** $3\overline{)7}$ $2\frac{1}{3}$	**12.** $3\overline{)14}$ $4\frac{2}{3}$	**16.** $3\overline{)25}$ $8\frac{1}{3}$

Tell the answers to these examples as quickly as you can: (Give the remainders as fractions.)

17. $5\overline{)31}$	**22.** $9\overline{)29}$	**27.** $6\overline{)29}$	**32.** $5\overline{)33}$	**37.** $8\overline{)55}$
18. $7\overline{)45}$	**23.** $8\overline{)29}$	**28.** $8\overline{)27}$	**33.** $8\overline{)33}$	**38.** $9\overline{)55}$
19. $6\overline{)43}$	**24.** $7\overline{)29}$	**29.** $9\overline{)27}$	**34.** $9\overline{)33}$	**39.** $6\overline{)55}$
20. $5\overline{)46}$	**25.** $5\overline{)29}$	**30.** $5\overline{)27}$	**35.** $4\overline{)33}$	**40.** $5\overline{)55}$
21. $6\overline{)41}$	**26.** $4\overline{)29}$	**31.** $4\overline{)27}$	**36.** $3\overline{)33}$	**41.** $4\overline{)55}$

42. $5 \div 4 = ?$	**48.** $8 \div 3 = ?$	**54.** $16 \div 5 = ?$
43. $4 \div 5 = ?$	**49.** $3 \div 8 = ?$	**55.** $5 \div 16 = ?$
44. $7 \div 8 = ?$	**50.** $5 \div 3 = ?$	**56.** $12 \div 5 = ?$
45. $8 \div 7 = ?$	**51.** $3 \div 5 = ?$	**57.** $5 \div 12 = ?$
46. $8 \div 5 = ?$	**52.** $9 \div 7 = ?$	**58.** $9 \div 4 = ?$
47. $5 \div 8 = ?$	**53.** $7 \div 9 = ?$	**59.** $4 \div 9 = ?$

Finding Averages

1. Three boys went fishing. Harry caught 7 fish, Howard caught 5, and Herbert caught 6. How many fish did they catch all together?

2. They decided to share the fish equally; so each boy took ___ fish.

3. During his vacation James earned $5 one week, $7 the next week, and $6 the next week. During the 3 weeks he earned ___ dollars. This is the same as if he had earned ___ dollars a week for 3 weeks.

We say that 6 is the *average* of 5, 6, and 7, or that 6 is the average number of dollars a week that James earned.

4. How did you find the average of 5, 6, and 7?

5. Marie spent 10 cents one day, 11 cents the next day, 15 the next, and 16 the next. How many cents did she spend all together?

This was the same as ___ cents a day for four days, or an average of ___ cents a day.

6. Tom's mark in arithmetic was 85 on Monday, 98 on Tuesday, and 90 on Wednesday. To find his average in arithmetic for the 3 days he first added 85, 98, and 90. The sum was ___. Then he divided this sum by ___, the number of days. His average was ___.

7. Tom's marks in spelling for 4 days were 88, 80, 86, and 92. What was his average mark for the 4 days?

To find the average of several numbers, add the numbers and divide the sum by the number of numbers.

More Practice in Finding Averages

In each of the following examples tell what you think the average is, and then work each example to see how nearly right you were. In the first example could the average be as large as 27? as small as 18? Do you think it lies somewhere between 18 and 27?

1. 18, 24, and 27

2. 25, 30, 28, 32, and 25

3. 16, 20, 23, and 18

4 48, 54, 61, 47, 39, and 27

5. 4, 5, 5, 7, 9, 6, and 11

6. 75, 150, and 120

7. 50, 62, 56, and 53

8. 100, 112, 121, and 99

9. 96, 92, and 88

10. 25, 32, 38, 41, and 29

11. 12, 7, 17, 23, 6, and 37

12. 8, 16, 20, 12, 17, and 10

13. In September my mark in arithmetic was 85, in October it was 90, in November it was 89. What is my average mark in arithmetic for the three months?

14. I spent 22¢ for lunch on Monday, 17¢ on Tuesday, 21¢ on Wednesday, 25¢ on Thursday, and 20¢ on Friday. Find the average daily cost of my lunch.

15. Our basketball team played three games this week. The first day their score was 20, the second day it was 16, and the third day it was 16. The Roosevelt School team had scores of 15, 18, and 12 points on the same three days. Which team had the higher average score for the three days? How much higher?

16. Keep a record on the blackboard of the temperature at noon every day for a week. Then find the average noon temperature for the week.

What You Have Learned

Do not use a pencil in finding these answers.

1. Multiply each of the following numbers by 10; by 20; by 100:

26 35 49 60 72

2. Find $\frac{3}{4}$ of: 24, 36, 40, 16, 28, 32, and 12.

3. Find $\frac{5}{6}$ of 24; $\frac{3}{8}$ of 24; $\frac{5}{8}$ of 24; $\frac{3}{4}$ of 24; $\frac{2}{3}$ of 24.

4. Find the cost of 50 trolley tickets at 5¢ each.

5. Find $\frac{1}{6}$ of 342; $\frac{1}{6}$ of \$32.40; $\frac{1}{5}$ of \$65.50.

6. Which is longer, $\frac{5}{8}$ of a stick or $\frac{5}{6}$ of it?

7. Find the total cost of the following order: $\frac{3}{4}$ lb. of butter at 60¢ a pound, 5 lb. of sugar at 7¢ a pound, and $\frac{3}{8}$ lb. of candy at 40¢ a pound.

8. Tell what fractions belong in these blank spaces: $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, —, —, —, —, 1, —, —, —, —, —, —, —, 2.

9. How many ounces are there in 1 lb.? $1\frac{1}{2}$ lb.? $1\frac{3}{4}$ lb.? 2 lb.? $2\frac{1}{4}$ lb.?

10. If 4 apples are divided equally among 5 boys, what part of an apple will each boy get?

11. If 5 apples are divided equally among 4 boys, how much apple will each boy get?

12. Supply the missing numbers:

$6\overline{)7}$ $8\overline{)13}$ $9\overline{)13}$ $7\overline{)15}$

$?_{?}^{?}$ $?_{?}^{?}$ $?_{?}^{?}$ $?_{?}^{?}$

13. Find the average of 5, 9, 3, and 4; of 8, 6, 12, and 4.

14. Supply the missing numbers:

a. 9 : 50 is ___ minutes of ___.

b. ___ ft. = 1 mi.

c. ___ da. = 1 yr.

d. ___ lb. = 1 ton.

Review

Find the product of:

1. 3814 and 7
2. 563 and 60
3. 784 and 32
4. 504 and 732
5. 843 and 200
6. 594 and 342

Write the sum of:

7. 1477, 38, 1626, and 408
8. $346.53, $407.03, $5.46
9. 16, 17, 25, 32, and 56
10. $873.49, $27.90, $.03

Write the difference between:

11. 4032 and 3298
12. 7654 and 2280
13. 279 and 850
14. 635 and 482
15. $276.40 and $84.32
16. $56.59 and $86.73

Write the quotients, expressing all remainders as fractions:

17. $224 \div 7$
18. $3528 \div 7$
19. $5680 \div 8$
20. $8118 \div 9$
21. $3252 \div 6$
22. $3776 \div 4$
23. $7 \div 8$
24. $9 \div 7$
25. $6 \div 5$
26. $12 \div 5$
27. $3 \div 8$
28. $4 \div 9$

29. Draw a picture of a cake, $\frac{2}{3}$ of which has been eaten.

30. Which is larger, $\frac{3}{4}$ or $\frac{3}{8}$ of a chocolate bar?

31. 1 ft. = ___ in.
$\frac{1}{3}$ ft. = ___ in.
$\frac{1}{4}$ ft. = ___ in.
$\frac{2}{3}$ ft. = ___ in.
$\frac{3}{4}$ ft. = ___ in.

32. 1 yd. = ___ in.
$\frac{1}{2}$ yd. = ___ in.
$\frac{1}{4}$ yd. = ___ in.
$\frac{3}{4}$ yd. = ___ in.
$\frac{1}{3}$ yd. = ___ in.

33. 1 lb. = ___ oz.
$\frac{1}{4}$ lb. = ___ oz.
$\frac{1}{8}$ lb. = ___ oz.
$\frac{3}{4}$ lb. = ___ oz.
$\frac{5}{8}$ lb. = ___ oz.

34. Marie bought a quarter of a pound of butter at 60¢ a pound and three fourths of a dozen of eggs at 60¢ a dozen. How much money did Marie need for the butter and eggs?

Progress Test No. 3

Write just the answers to these examples on your test paper. Number each answer. (Record your score on the Progress Test Record at the back of the book.)

1. Add:
$$\begin{array}{r} 368 \\ 9473 \\ 2896 \\ 4507 \\ 5639 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 475 \\ \times 329 \\ \hline \end{array}$$

3.
$$\begin{array}{r} \$4.73 \\ \times 16 \\ \hline \end{array}$$

4. Find the difference between \$175.63 and \$18.94.

5. $\frac{5}{6}$ of 48 = ?

6. If you buy $\frac{3}{4}$ lb. of meat at 40¢ a pound and hand the clerk a dollar bill, you should receive ___¢ change.

7. $9\overline{)6483}$

8.
$$\begin{array}{r} 63 \\ \times 2000 \\ \hline \end{array}$$

9. Does $2\frac{1}{4}$ lb. = 2 lb. 4 oz.?

10. If 7 oranges are divided equally among 8 boys, will each boy get more or less than a whole orange?

11. What is the average of 6, 8, 9, 10, and 12?

12. Albert was away from school for 8 days. When he went back, he found he had 50 arithmetic examples to make up. If he does 5 examples each day, how many days will it take him to make up his work?

Standards: X, 11. Y, 9. Z, 7.

Finding Out What You Know and What You Don't Know

TEST I. ADDITION

1.	2.	3.	4.	5.	6.
9	7	19	450	$2.49	$ 35.98
3	6	26	76	3.87	100.07
6	4	84	395	31.65	69.85
7	5	35	72	4.98	40.40
5	6	78	869	76.85	769.00
	8			4.98	

TEST II. SUBTRACTION

1.	2.	3.	4.	5.
921	608	476	900	$154.79
299	279	209	176	149.74

6. From 756 take 79.

7. Find the difference between 1001 and 101.

TEST III. MULTIPLICATION

1.	2.	3.	4.	5.
850	706	29	$39.05	8792
9	8	46	8	7

6.	7.	8.	9.	10.
276	$5.76	24	96	564
35	38	100	40	793

TEST IV. DIVISION

1. $6\overline{)252}$ 2. $3\overline{)76}$ 3. $4\overline{)467}$ 4. $3\overline{)782}$

5. $8\overline{)5640}$ 6. $5\overline{)\$76.85}$ 7. $804 \div 7 = ?$ 8. $\frac{1}{4}$ of $48 = ?$

9. $9\overline{)39}$. Express the remainder as a fraction.

10. Find the average of 57, 63, 89, 93, and 48.

11. $2 \div 3$ is written $\frac{?}{?}$.

1. Write these numbers in words: *a.* 600,606; *b.* XCVI.

2. What numbers belong in these spaces?

$\frac{5}{8}$, $\frac{6}{8}$, $\frac{7}{8}$, ___, ___, ___, ___, ___, $1\frac{5}{8}$.

3. $\frac{1}{8}$ of 40 = ? $\frac{5}{8}$ of 40 = ?

4. One of the eight equal parts into which a cake is divided is called one ___ of the cake.

5. Five of those eight parts is called ___ ___ of the cake.

TEST VI. MEASUREMENT

1. $\frac{1}{2}$ min. = ___ sec.
2. 1 da. = ___ hr.
3. $\frac{1}{2}$ pk. = ___ qt.
4. $\frac{1}{2}$ yd. = ___ in.
5. 1 yr. = ___ da.
6. 1 ton = ___ lb.
7. 1 yr. = ___ mo.
8. $\frac{1}{8}$ lb. = ___ oz.
9. $\frac{1}{4}$ pk. = ___ qt.
10. 3 lb. = ___ oz.
11. $\frac{5}{6}$ ft. = ___ in.
12. $2\frac{1}{2}$ ft. = ___ in.
13. 1 lb. 6 oz. = ___ oz.
14. 3 ft. 6 in. = ___ ft.
15. $1\frac{1}{4}$ yd. = 1 yd. ___ in.
16. $\frac{3}{4}$ hr. = ___ min.

The Practice You Need

If you made any mistakes in Tests I to VI, you need practice on examples like the ones you missed. The table on the next page tells you where to find that practice. Do you see that it tells you if you missed Example 1, Test I, you should practice page 214, E? If you had missed Example 2, Test II, where could you find the examples you should practice?

The Practice You Need

Test I	Test II	Test III	Test IV	Test V	Test VI
1. p. 214–E **2.** p. 214–E **3.** p. 214–F **4.** p. 256, Exs. 1–4 **5–6.** p. 263, Exs. 8–12	**1.** p. 217–D **2.** p. 217–E **3.** p. 216–E **4.** p. 217–F **5.** p. 263, Exs. 13–17 **6.** p. 238, Exs. 1–12 **7.** p. 238, Exs. 1–12	**1.** p. 222–F **2.** p. 222–G **3.** p. 222–H **4–5.** p. 223, Exs. 2–6 **6.** p. 254, Exs. 1–11 **7.** p. 264, Exs. 6–17 **8–9.** p. 268, Exs. 5–8 **10.** p. 270, Exs. 7–8	**1.** p. 233, Test I–F **2.** p. 233, Test II–C **3.** p. 233, Test II–D **4.** p. 233, Test II–E **5.** p. 233, Test II–F **6.** p. 245, Exs. 4–23 **7.** p. 271, Exs. 1–12 **8.** p. 274, Exs. 1–9 **9.** p. 281, Exs. 1–41 **10.** pp. 282–3 **11.** pp. 278–9	**1.** (*a*) pp. 208–9 (*b*) p. 210 **2.** p. 275, Exs. IV–X **3.** p. 274, Exs. 10–14 **4.** p. 249 **5.** p. 249	**1–2.** pp. 211–2 **3–11.** p. 227 **12–16.** p. 273

Just for Fun

Bill: What is your favorite number, Jack?

Jack: Seven. Why?

Bill: Then do this multiplication:

$$\begin{array}{r} 12345679 \\ \times\quad 63 \\ \hline \end{array}$$

Jack was quite surprised at the answer. Try it on your friend.

First, ask him his favorite number (under 10).

Next write down 1 2 3 4 5 6 7 9 (skip 8).

For a multiplier write down 9 times the favorite number.

Tell him to multiply and see what he gets.

CHAPTER IV

MEASUREMENTS

Arthur's Problems *

Arthur's mother is going to make new curtains. She asked Arthur to measure the windows in the living room to find out how much material she needs. Arthur measured the windows, allowed for hems, and then made this list.

East window, 6 ft.
South window, 5 ft.
Window-seat window, 4 ft.
Front door, 7 ft.

1. He said, "You'll have to buy ___ yd. of material for the east window, ___ yd. for the south window, ___ yd. for the window-seat window, and ___ yd. for the front door."

2. His mother said, "Why, I'm not going to buy that in four separate pieces. For the four windows I'll buy all together ___ feet; that is, ___ yards of material."

3. When Arthur went to New York, he saw a building that he thought was a mile high. When he asked the guard how high it was, the guard answered, "690 feet." How much less than a mile is that?

4. Arthur also saw an elephant that he thought must weigh a ton. The keeper told him that it weighed 1768 lb. Is that more or less than a ton? How much?

Addition

Add without copying, and check: (Keep a record of the number of minutes it takes you to do each test.)

TEST 1

1.	2.	3.	4.	5.
16	19	17	23	42
49	100	6	9	75
35	4	125	540	23
182	63	34	31	600
76	87	598	876	60

TEST 2

1.	2.	3.	4.	5.
18	26	139	56	43
76	65	630	49	87
850	487	476	865	695
432	59	5879	93	98
79	6	400	78	86
84	89	8	5462	1134

TEST 3

1.	2.	3.	4.	5.
173	28	52	546	17
279	987	634	859	387
876	63	58	376	4765
543	547	897	54	820
687	8	64	827	4009
298	632	59	59	23
564	40	763	64	57

TEST 4

1.	2.	3.	4.
$207.53	$876.54	$864.75	$765.83
546.82	37.28	32.69	37.98
27.99	4.83	8.76	44.56
954.83	6.94	54.37	2.87
5.76	275.86	463.21	5.98
3.98	5.98	2.89	1009.90

Multiplication Practice

	a	*b*	*c*	*d*	*e*
1.	847 362	698 79	457 36	234 71	564 13
2.	395 949	386 87	345 36	465 38	543 38
3.	345 89	457 698	803 270	795 49	766 540
4.	405 69	547 897	507 974	597 860	405 73
5.	389 760	567 978	407 75	476 35	456 73
6.	689 957	598 567	763 240	478 56	409 890
7.	672 560	876 95	698 57	509 486	478 956
8.	567 49	789 568	458 97	789 58	478 49
9.	246 62	683 896	136 89	389 834	349 328

Subtracting [1]

(1)

\$6.00		\$5.9(10)
2.57	or	2.5 7
		\$3.4 3

In doing this example I think: 7 from 10 is ___, 5 from 9 is ___, 2 from 5 is ___. My answer is ___. Does it check?

(2)

\$20.00		\$19.9(10)
14.75	or	14.7 5
		\$5.2 5

In doing this example I think: 5 from 10 is ___, 7 from 9 is ___, 4 from 9 is ___, 1 from 1 is ___.

My answer is ___. Does it check?

(3)

\$300.00		\$299.9(10)
187.56	or	187.5 6
		\$112.4 4

In doing this example I think: 6 from 10 is ___, 5 from 9 is ___, 7 from 9 is ___ 8 from 9 is ___, 1 from 2 is ___.

My answer is ___. Does it check?

(4)

\$4000.00		\$3999.9(10)
2675.49	or	2675.4 9
		\$1324.5 1

In this I think: 9 from ___ is ___, 4 from ___ is ___, 5 from ___ is ___, 7 from ___ is ___, 6 from ___ is ___, 2 from ___ is ___. My answer is ___. Does it check?

Tell what you think in doing these subtractions:

1. \$500.00	**2.** \$300.00	**3.** \$700.00	**4.** \$800.00
489.73	175.65	248.67	297.56
\$ 10.27	\$124.35	\$451.33	\$502.44
5. \$3000.00	**6.** \$5000.03	**7.** \$7000.02	**8.** \$6000.00
2796.84	789.45	3847.65	72.99
\$ 203.16	\$4210.58	\$3152.37	\$5927.01

[1] NOTE TO THE TEACHER. If you are teaching additive subtraction, omit this development.

Subtraction

Subtract and check:

	a	*b*	*c*	*d*	*e*
1.	800 576	400 382	700 678	800 539	1200 843
2.	4000 1287	5000 3432	7000 2542	8000 4632	5000 4734
3.	$50.00 25.38	$70.00 9.46	$80.00 78.76	$70.05 24.35	$90.06 5.79
4.	56,000 28,473	80,000 78,654	75,008 29,465	74,300 4,695	80,050 17,965
5.	80,700 35,463	54,000 8,695	38,720 38,706	58,493 28,070	63,500 40,698

Saving

6. Harry wants a pair of skates that cost $3.75. He has saved $2.87 toward them. He needs ____ more.

7. Grace is saving her money to buy a sewing machine that costs $10.00. She has $5.95; so she needs ____ more.

8. Harry wants a 25-dollar bicycle. He has saved $14.69. How much more does he need?

9. Doris has $59.27 in her savings account at the bank. She wants a pony that costs $170.00. How much more does she need in order to get the pony?

Do these divisions:

1.	$2 \div 3 = ?$	$6 \div 7 = ?$	$5 \div 9 = ?$	$4 \div 9 = ?$
2.	$4 \div 7 = ?$	$5 \div 4 = ?$	$6 \div 3 = ?$	$9 \div 4 = ?$
3.	$8 \div 9 = ?$	$12 \div 11 = ?$	$3 \div 6 = ?$	$13 \div 6 = ?$
4.	$9 \div 8 = ?$	$7 \div 9 = ?$	$7 \div 5 = ?$	$5 \div 12 = ?$

	a	*b*	*c*	*d*	*e*
5.	6)25	7)25	8)57	6)127	7)862
6.	9)28	9)26	5)37	5)216	5)654
7.	8)37	9)49	8)75	4)257	7)716
8.	7)57	8)49	9)83	6)863	8)817
9.	9)74	7)49	8)81	7)296	9)929
10.	5)6384	7)4638	7)2569	9)8763	7)7715
11.	6)7543	6)7532	2)8431	8)6457	8)6035
12.	4)8621	3)5386	5)6375	4)4367	9)2487
13.	8)3570	9)2755	9)5402	7)2809	4)3795

14. Five boys bought a tent for $10.95 and divided the cost equally. How much did each boy have to pay?

15. Roy and Jack each work in a store. Roy gets $5.00 a week. Jack gets 75¢ each afternoon after school and $1.50 on Saturday. Which boy gets the larger wages for the week?

16. My marks this month are: Arithmetic 92, Reading 88, Spelling 90, Writing 85, and Drawing 80. My average mark for this month is ____.

Making Change*

1. In giving a customer change from a 2-dollar bill after a 28-cent purchase, you hand him ___ cents, saying, "30"; ___ dimes, saying, "50"; ___ half dollar, saying, "One dollar"; and a dollar bill, saying, "Two dollars."

2. Tell what coins you would give and what you would say in giving a customer his change in these purchases:

Purchase	Amount Given	Purchase	Amount Given
a. $1.17	$1.50	*h.* $ 6.75	$10.00
b. $2.14	$3.00	*i.* $11.04	$12.00
c. $1.31	$2.00	*j.* $ 4.62	$ 4.75
d. $2.49	$5.00	*k.* $ 3.09	$ 3.25
e. $7.98	$8.00	*l.* $ 7.03	$ 8.00
f. $2.08	$2.50	*m.* $ 8.24	$ 9.00
g. $1.52	$1.75	*n.* $ .08	$ 1.00

A Grocery Sale

Tea, 1-lb. package, 72¢; 5-lb. package, $3.19.
Baking Powder, 4-oz. box, 10¢; 8-oz. box, 18¢; 1-lb. box, 32¢.
Cocoa, 8-oz. box, 18¢; 1-lb. box, 30¢; 2-lb. box, 55¢.
Vinegar, ½-pt. bottle, 15¢; 1-pt. bottle, 25¢; 1-qt. bottle, 45¢.

3. How much do you save by buying a 5-lb. package of tea at this sale instead of five 1-lb. packages?

4. How much do you save by buying a 1-lb. box of baking powder instead of a pound in 4-oz. boxes? in 8-oz. boxes?

5. How much do you save by buying a 2-lb. box of cocoa instead of buying 2 pounds in 8-oz. boxes? in 1-lb. boxes?

6. How much do you save by buying a 1-qt. bottle of vinegar instead of a quart in ½-pt. bottles? in 1-pt. bottles?

1. On the Fourth of July Ruth said, "School closed a month ago today and will open two months from today." On what day did Ruth's school close and when does it open?

2. If you want to mail a package two weeks before Christmas, on what date should you mail it?

3. Do all the months in the year have the same number of days?

4. Look at a calendar. Which months have 31 days? Which months have 30 days? How many days has February?

5. February usually has 28 days. It has 29 days in leap year. Do you know what leap year is? These years are leap years: 1904, 1908, 1912, 1916, 1920, 1924, 1928, 1932, etc. Divide each of these numbers by 4. Do you have any remainder? We say that the date of a leap year is "divisible by 4"; that means without a remainder. Tell the other leap years up to 1948.

6. The President of the United States is elected in leap year. In which of these years will a President be elected? 1937, 1944, 1950, 1960.

	S	M	T	W	T	F	S
JAN.	..	..	..	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	..
	..	..	..	..	..	..	1
FEB.	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	..
	..	..	..	..	..	..	1
MAR.	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	..	..	..	..	..
APR.	..	..	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	..	..	..
	..	..	..	..	1	2	3
MAY	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
	..	..	..	..	..	..	..
JUNE	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	..	..	..	..	..
JULY	..	..	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	..	..
	..	..	..	..	..	1	2
AUG.	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	..	..	..	..	..	..
SEPT.	..	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	..	..	..	..
OCT.	..	..	..	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	..
	..	..	..	..	..	..	1
NOV.	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	..	..	..	..	..	..
DEC.	..	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	..	..	..

More about the Calendar

1. This little rhyme will help you to remember the months that have 30 days. Be sure to learn it.

Thirty days have September,
April, June, and November.

Of course you will remember that all the rest have 31, except February. February has ___ days except in leap year, when it has ___ days.

2. How many weeks are there in February?

3. In April there are ___ weeks and ___ days.

4. In August there are ___ weeks and ___ days.

5. According to the calendar on page 297, what day of the week is New Year's Day? Washington's Birthday? Memorial Day? Fourth of July? Armistice Day? Christmas Day? your birthday?

6. We sometimes call December, January, and February the winter months; March, April, and May the spring months; June, July, and August the summer months; and September, October, and November the fall months. How many days are there in the winter months? the spring months? the summer months? the fall months?

7. How many months are there in a year? in two years?

8. Multiply:

12	12	12	12	12
1	2	3	4	5
12	12	12	12	12
6	7	8	9	10

9. Complete this table up to $12 \times 10 = 120$:

$1 \times 12 = 12$	$3 \times 12 = 36$
$12 \times 1 = 12$	$12 \times 3 = 36$
$2 \times 12 = 24$	$4 \times 12 = ?$
$12 \times 2 = 24$	$12 \times 4 = ?$

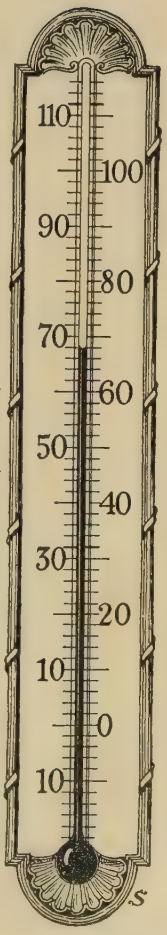
Temperature

1. When you want to tell how long a rope is, you measure it in inches, feet, or ___.

2. When you want to find how much milk there is in a can, you measure it by the pint, quart, or ___.

When you want to know how warm it is, you look at a thermometer. It measures the *temperature* in *degrees*.

When it is warm, the mercury in a thermometer is high. When it is cold, the mercury is low.



3. What is the temperature shown on the thermometer on this page? 68 degrees is written this way: 68°.

4. Where would the mercury be if the thermometer showed a temperature two degrees warmer? 10 degrees warmer? 20 degrees warmer?

5. Where would the mercury be if the thermometer showed a temperature two degrees colder? 10 degrees colder? 20 degrees colder?

6. At what season of the year is the temperature likely to be 85°?

7. Is it getting warmer or colder when the temperature moves from 68° to 72°?

8. Water freezes at 32°. Does the temperature often go to 32° where you live? to 0°? below zero? At what season of the year does the thermometer read zero degrees?

9. Which temperature is colder, 68° or 64°?

Read these Roman numerals: (See page 210 if necessary.)

1. XL; XLV; XLVIII; XLIX.
2. LXX; LXXII; LXXV; LXXVIII; LXXIX.
3. XC; XCII; XCV; XCVII; XCIX.
4. XXV; XXXVII; LVI; LXV; LXXXIX.

Read these numbers:

5. 1,000	6. 2,220	7. 4,200	8. 9,653
10,000	22,220	42,000	87,604
100,000	222,220	420,000	999,999

9. Count from 999,990 to 999,999.

In the example in this box, 1 is added to 999,999. The answer is *one million*. Notice where the commas are placed.

999,999
1
1,000,000

Read:	*a*	*b*	*c*
10.	2,000,000	2,346,000	7,306,405
11.	5,000,000	4,738,000	8,087,086
12.	9,000,000	5,682,000	9,780,009

Write in figures:

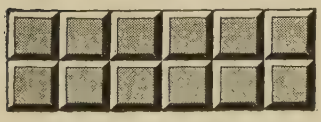
13. Three million, six hundred six thousand, four hundred.
14. Two million, nine thousand, nine.
15. Four million, forty-four thousand, four hundred four.
16. Find in the newspaper ten numbers of seven figures each. Tell the class how they were used.
17. Count by hundreds to 2547, beginning 547, 647, · · ·
18. Ask your teacher to read some large numbers for you to write in figures.

Jack and Earl went into the candy store. Each bought a chocolate bar. Jack's was 6 "blocks" long and 2 "blocks" wide. Earl's was 4 "blocks" long and 3 "blocks" wide. When they came out of the store, Earl said: "Why didn't you buy the kind of chocolate bar I did? Mine is larger than yours." (Do you think he was right?)

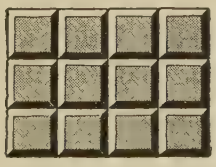
Jack said: "Oh, no, it isn't. I can prove it." This is the way he proved it.

(*a*) He put the chocolate bars side by side, like this, noticing that they both had the same thickness.

JACK'S CHOCOLATE BAR



EARL'S CHOCOLATE BAR



(*b*) He said: "Each of the little squares in your bar is 1 inch long and 1 inch wide. Each square is 1 *square inch.* There are ___ squares; so your bar contains 12 sq. in. of chocolate.

(*c*) "Each of the squares in my bar is 1 inch long and 1 inch wide. Each square is 1 *square inch.* There are ___ squares; so my bar contains 12 sq. in. of chocolate and is just as large as yours."

Do you think Jack was right?

(*d*) How many square inches of chocolate were there in the two bars together?

1. A drawing like the one shown here is called a *rectangle.* This rectangle has three rows of squares, with ___ squares in each row.

2. How long is the rectangle below? How wide is it? How many square inches are there in it?

The space inside a rectangle is called the *area* of the rectangle. We say the area of this rectangle is 4 sq. in.

3. Draw a rectangle 4 in. long and 2 in. wide. Mark the square inches. How many square inches are there in each row? How many rows? How many square inches in all? The area of the rectangle is ___ sq. in.

4. Draw a rectangle 4 in. long and 3 in. wide. Mark the square inches. How many are there in each row? Are there as many as there are inches in the length?

5. How many rows are there? Are there as many as there are inches in the width?

6. Multiply the number of inches in the length by the number of inches in the width. Does your answer tell how many square inches there are in the rectangle? The area $= 3 \times 4$ (sq. in.) $= 12$ sq. in.

7. Draw a rectangle 5 in. long and 3 in. wide. Mark the square inches. Multiply the number of inches in the length by the number of inches in the width. Does your answer equal the area of the rectangle?

The area of a rectangle is found by multiplying its length by its width.

The length and width of a rectangle are called its *dimensions*. (The dimensions of the rectangle you drew for Example 7 are 5 in. and 3 in.)

8. Find the areas of rectangles having these dimensions:

a. 6 in. and 5 in.
b. 10 in. and 12 in.
c. 14 in. and 20 in.
d. 16 in. and 18 in.
e. 24 in. and 32 in.
f. 28 in. and 19 in.
g. 25 in. and 25 in.
h. 45 in. and 24 in.
i. 36 in. and 38 in.
j. 52 in. and 28 in.

9. On the blackboard draw a square 1 ft. long and 1 ft. wide. We call this 1 square foot.

10. Draw a rectangle 2 ft. long and 1 ft. wide. Divide it into square feet. How many square feet does it contain?

11. Draw a rectangle 3 ft. long and 2 ft. wide. Divide it into square feet. How many square feet does it contain? Can its area (number of square feet) be found by multiplying its length by its width?

12. Find the areas of the rectangles having the following dimensions:

a. 5 ft. and 6 ft.
b. 9 ft. and 4 ft.
c. 8 ft. and 12 ft.
d. 9 ft. and 27 ft.
e. 24 ft. and 16 ft.
f. 32 ft. and 45 ft.
g. 36 ft. and 18 ft.
h. 22 ft. and 32 ft.
i. 28 ft. and 19 ft.
j. 36 ft. and 29 ft.

Saving to Go to College*

1. Roy, who is 9 years old and just finishing the fourth grade, wants to go to college. He must go through the eighth grade and then go four years to high school before he is ready for college. How many years will it be before he is ready for college?

2. He is saving his money to help pay his way in college. He has $175.76 in gifts and earnings in the bank now and wants to have at least $1000 before he goes to college. How much more must he save?

3. In order to save $824.24, he would have to save an average of ___ each year.

4. He works every day after school. His mother wants him to save $12 a month, and his father said he ought to save $3 a week. Which one wants him to save the larger amount?

5. If Roy saves $3 a week, how much will he save in a year? (1 yr. = 52 wk.)

6. If Roy saves $12 a month, how much will he save in a year?

7. Every year on his birthday his grandfather gives him $10.00 and his father gives him $5.00. How much have they given him already?

8. How much more will he get from his father and grandfather in birthday gifts before he goes to college?

9. Roy's father thinks it will cost Roy about $900 each of the four years he is in college. If that is so, how much will his college education cost him all together?

Do you earn? Do you save? How?
BANK
F. and M. Hoopes

A Fraction Review

Give the missing numbers:

1. $\frac{1}{4}$ of 8 = ?
2. $\frac{3}{4}$ of 8 = ?
3. $\frac{1}{8}$ of 16 = ?
4. $\frac{3}{8}$ of 16 = ?
5. $\frac{5}{8}$ of 16 = ?
6. $\frac{1}{6}$ of 12 = ?
7. $\frac{5}{6}$ of 12 = ?
8. $\frac{3}{8}$ of 24 = ?
9. $\frac{3}{4}$ of 12 = ?
10. $\frac{5}{6}$ of 30 = ?
11. $\frac{5}{8}$ of 40 = ?
12. $\frac{7}{8}$ of 64 = ?
13. $\frac{5}{9}$ of 63 = ?
14. $\frac{3}{4}$ of 16 = ?
15. $\frac{3}{8}$ of 32 = ?
16. $\frac{4}{9}$ of 54 = ?
17. $\frac{3}{4}$ of 60 = ?
18. $\frac{3}{8}$ of 96 = ?
19. $\frac{5}{8}$ of 120 = ?
20. $\frac{7}{8}$ of 160 = ?
21. $\frac{3}{4}$ of 160 = ?
22. $\frac{3}{5}$ of 200 = ?
23. $\frac{4}{5}$ of 400 = ?
24. $\frac{3}{7}$ of 140 = ?

Do these divisions:

25. $33 \div 5 =$
26. $5 \div 12 =$
27. $29 \div 7 =$
28. $29 \div 4 =$
29. $65 \div 9 =$
30. $21 \div 5 =$
31. $5 \div 26 =$
32. $38 \div 9 =$
33. $48 \div 5 =$
34. $53 \div 8 =$
35. $55 \div 4 =$
36. $72 \div 5 =$
37. $73 \div 6 =$
38. $83 \div 8 =$
39. $96 \div 7 =$

Answer these questions by "Yes" or "No":

40. Does $\frac{1}{2}$ of 8 equal $\frac{2}{4}$ of 8?
41. Does $\frac{2}{3}$ of 12 equal $\frac{4}{6}$ of 12?
42. Is the fraction $\frac{3}{8}$ larger than the fraction $\frac{3}{4}$?
43. Does 2 divided by 3 equal $\frac{3}{2}$?
44. Does $\frac{4}{8}$ of 16 equal $\frac{1}{2}$ of 16?
45. Does $\frac{5}{10}$ of 20 equal $\frac{1}{2}$ of 20?
46. Does $\frac{1}{4}$ of 16 equal $\frac{2}{8}$ of 16?
47. Is $\frac{3}{8}$ more than $\frac{1}{4}$?
48. Is $\frac{9}{8}$ smaller than $\frac{8}{9}$?
49. Is $\frac{5}{4}$ less than $\frac{5}{8}$?
50. Does $3 \div 4 = \frac{4}{3}$?

Sharing the Cost *

1. Mary, Louise, and Margaret are at Sandy Beach and want to send some post cards. Mary wants to send 1, Louise 2, and Margaret 2. If they buy this pack of 5 post cards, how much of the 20¢ should each pay?

2. Mary said: "Since 5 post cards cost 20¢, 1 post card costs $\frac{1}{5}$ of 20 cents, or ___¢. So I ought to pay 4¢. Since Louise and Margaret each want to send 2 cards, they each should pay 2×4¢, or ___¢." Do you think Mary is right? If each girl pays what Mary said she should, will they be paying 20¢ all together?

3. Anna and Jane are buying this box of paper dolls. Anna wants 2 dolls and Jane wants 3. How much does 1 doll cost? How much do 2 dolls cost? 3 dolls? Do the cost of the 2 dolls and the cost of the 3 dolls together equal the cost of the 5 dolls?

4. Roy, Tom, and Joe wanted some big glass marbles. The shopkeeper said: "I have only 7 of them left. You may have them all for 28¢." Roy took 1, Tom took 2, and Joe 4. How much should each boy pay?

5. I bought a half-dozen pencils for 12¢. Mary wants to buy 2 of them. How much should she pay me for them?

6. I bought 8 pears for 32¢ and sold 3 to Elizabeth and 2 to Catherine. How much should each girl pay me?

7. *A problem for bright pupils.* I bought a half-dozen balls for 30¢. I'd like to keep one and sell the other five. If I charge ___¢ apiece for the ones I sell, the one I keep will not cost me anything.

Checking Answers by Estimating

The children in a fourth-grade class had this problem:

Find the cost of 5 yards of velvet at $3.98 a yard.

This is the way Harry did it:

$$\begin{array}{r} \$3.98 \\ \times \quad 5 \\ \hline \$1990 \end{array}$$

Is his work correct? Here is a way Harry should have discovered his mistake. He should have thought: "Is my answer reasonable? Let's see. $3.98 is about $4. At $4 a yard, 5 yd. of velvet would cost 5 × $4, or $20. So my answer should be about $20. Is it? Why, no, I have over a thousand dollars. That can't possibly be right. What is the matter? Oh, I know; I forgot to put in the ___ ___."

When we find *about* how much a thing should cost, we say we are *estimating* the cost. Do you see how Harry might have discovered his mistake by estimating the answer? You should always estimate the answer to a problem to see if your answer is reasonable.

Luther had this problem:

At $4.98 a yard how much would 8 yd. of carpet cost?

He worked the problem like this: ——→

$$\begin{array}{r} \$4.98 \\ \times \quad 8 \\ \hline \$32.84 \end{array}$$

Then he thought: "Is that about right? Let's see. $4.98 is about $___. 8 × $5 is $___. I should have about $40 for my answer. $32.84 is not very near $40. I must have made a mistake." So he went over his work and found that he had forgotten to ___.

Don't you think that estimating is a good way to discover a mistake?

Estimating Answers

Sometimes we need to know only *about* what the answer to a problem is. In that case we *estimate* the answer.

1. Mary wanted to buy 6 handkerchiefs at 19¢ each. She thought, "19¢ is about 20¢; so 6 handkerchiefs will cost about ___." She *estimated* the answer to be about $1.20. What do you find the answer to be when you work the problem?

2. Mrs. Smith had a 10-dollar bill. She saw some dress material for 98¢ a yard. She wanted to know how much money she would have left if she bought 4 yards. She thought, "98¢ is almost $1.00; so 4 yards of that material will cost about ___. That means if I get 4 yards of it, I'll have about ___ left out of my 10-dollar bill." Work the problem and see if she would have left about as much as she *estimated* she would.

3. If a hat costs $2.49 and a coat costs $11.98, what would you estimate the cost of the coat and hat to be? Work the problem and see if your answer is about what you *estimated* it would be.

4. I have $15.00 and want a set of books that cost $11.53. I *estimate* that I'll have left about ___ if I buy the books. How much will I have left?

5. Mr. King ordered 5 tons of coal at $9.96 a ton. He *estimated* his coal bill would be about ___. How much was it?

6. If a floor is 19 ft. wide and 31 ft. long, I should *estimate* the area of the floor to be about ___ sq. ft. Work the problem and find the real number of square feet in the floor.

7. If I get 100 in a spelling test and 90 in an arithmetic test, I should *estimate* the average of the two marks to be about ___. What is it?

Summary

1. Add and check: \$354.76, \$54.54, \$300.04, \$673.82, \$9.63, and \$43.75.

2. Find the product of 407 and 59.

3. Find the product of 654 and 329.

4. My father ordered a ton of coal. 1868 lb. were delivered. He got ___ lb. less than he had ordered.

Do these divisions: (Give the remainders as fractions.)

5. $8\overline{)297}$ **6.** $9\overline{)650}$ **7.** $9\overline{)8763}$ **8.** $8\overline{)6449}$ **9.** $9\overline{)180}$

10. In giving the change from a 10-dollar bill after a purchase amounting to \$4.67, what coins and bills would you give and what would you say as you gave them?

11. Write the names of the months in order and tell how many days there are in each.

12. Which of these years are leap years: 1913, 1920, 1936?

13. Write in figures the number four million, thirty-six thousand, two hundred two.

14. What is the area of the floor of a room 18 ft. wide and 22 ft. long?

15. If a box containing 8 apples sells for 40¢, what are 6 of the apples worth?

16. Estimate the cost of 8 toy boats that sell for 49¢ each.

17. Find the total cost of a half gallon of ice cream at \$1.20 a gallon and 2 lb. of cookies at 37¢ a pound.

18. If 5 cookies are shared equally by 10 boys, what part of a cooky will each boy get?

19. Would the temperature on Christmas Day be likely to be 82° or 28° in New York City?

Progress Test No. 4

Write just the answers to these examples on your paper. Number each answer. *It is better to do five examples and have them all right than to do ten and have half of them wrong.* (Record your score.)

Add:

1. $4 6 7.8 9
5 9 3.4 6
2 8 7.7 3
8 4.3 2
9.7 9
5 6.8 9

Subtract: **2.** 5 6 4 8 − 2 8 7 5

3. $7 0 0 0.0 9 − 2 8 7 6.3 9

Multiply: **4.** 8 5 6 × 2 3 9

5. 7 6 4 × 2 9 0

6. 4 0 9 × 5 7

Divide: (Express remainders as fractions.)

7. $8\overline{)6\,4\,0}$

8. $9\overline{)2\,7\,9\,4}$

9. $8\overline{)5\,3\,6\,7}$

10. Write in figures: one million, one thousand, one.

11. The area of a rectangle whose dimensions are 16 ft. and 8 ft. is ___ sq. ft.

12. Find the cost of 1 lb. of rice at 10¢ a pound and 2 loaves of bread at 8¢ a loaf.

13. If you divide $17.64 equally among 6 boys, how much will each boy receive?

Standards: X, 12. Y, 10. Z, 7.

CHAPTER V

LONG DIVISION

The Panama Canal *

1. In going from New York to San Francisco around South America a ship travels 12,929 miles. In going through the Panama Canal the trip is only 5,960 miles. How many miles are saved by going through the canal?

2. The Panama Canal is 50 miles long. Can you name a town that is about 50 miles from your home town? 100 miles? 150 miles?

3. The canal is 300 ft. wide at the narrowest place. Name something that is about 300 ft. from your schoolhouse.

4. The French government began working on the canal in 1880. How many years ago was that?

5. France worked on the canal until 1904. How long did they work on it?

6. The United States started to work on the canal in 1904 and finished it in 10 years. When was the canal finished? How long ago was it finished?

7. How long did it take all together to build the canal?

8. France spent $300,000,000 on the canal. The United States spent $375,000,000. What was the total cost?

9. How much more did we spend on the canal than France?

Getting Ready for Long Division

The children in our room have been asked to make 365 little paper Christmas bells to give to the Children's Home. There are 30 children in our room. We wondered how many bells each of us should make so that the work would be divided equally among us. Do you know? To find out, we divided 365 by 30 like this :——→

```
30)365
   12 r5
```

In this division we thought, "30 in 36, 1 time and 6 over."

Putting the 6 with the 5, making 65, we thought, "30 in 65, 2 times and 5 over."

Our teacher told us that when the divisor is a large number like 30 there is an easier way to divide than the way we used above. This is the way she showed us how to do it.

Write the example this way :——→

```
30)365
```

(1) Then think, "30 in 36, 1 time and something left over." Write the 1 *above* the 6 of the 36, as is done in this box :——→

```
   1
30)365
  30
   6
```

(2) How much is left over? Well, 1 times 30 is 30. Write the 30 under the 36. Subtract 30 from 36 and see how much is left over.

(3) Now the 6 goes with the 5 to make 65; so let's bring down the 5 and put it beside the 6, and then divide 65 by 30.

```
  12
30)365
  30
  65
```

(4) Think, "30 in 65, 2 times and something over." Write the 2 in the quotient.

(5) Now how much is left? 2 times 30 is 60. Subtract 60 from 65 and see how much is left.

(6) How many bells should each of us make? The teacher said that she would make the 5 extra ones.

```
  12 r5
30)365
  30
  65
  60
   5
```

This way of dividing is called *long division.* Don't you see that it is easy because you don't have to remember how much to carry and you can subtract on paper instead of in your head?

Divide 297 by 21.

1st Step	2d Step	3d Step	4th Step
Divide	Multiply	Subtract	Bring down
1 21)297	1 21)297 21	1 21)297 21 8	1 21)297 21 87

5th Step	6th Step	7th Step	Last Step
Divide	Multiply	Subtract	
14 21)297 21 87	14 21)297 21 87 84	14 21)297 21 87 84 3	14 r3 21)297 21 87 84 3

Say over these four steps of long division several times:

Divide.	Multiply.	Subtract.	Bring down.

Work these examples:

1. $11\overline{)475}$
2. $21\overline{)656}$
3. $32\overline{)745}$

This is the way your work should look:

1. $11\overline{)475}$ — 43 r2; 44; 35; 33; 2
2. $21\overline{)656}$ — 31 r5; 63; 26; 21; 5
3. $32\overline{)739}$ — 23 r3; 64; 99; 96; 3

Explain the work that has been done in these division examples and then complete it:

4. $23\overline{)299}$ — 1?; ??; ??; ??
5. $13\overline{)288}$ — 2? r?; ??; ??; ??; ?
6. $41\overline{)478}$ — 1? r?; 41; 68; ??; ??
7. $34\overline{)422}$ — 1? r?; 34; 8?; ??; ??
8. $43\overline{)952}$ — 2? r?; 86; ??; ??; ?
9. $28\overline{)315}$ — 1? r?; 28; 3?; ??; ?

10.

$$21\overline{)654}$$

31 r3; 63; 24; 21; 3

In this division example, 654 is the ____; 21 is the ____; 31 is the ____; and 3 is the ____.

This shows that ____ is contained in 654 ____ times and ____ over.

Long-Division Practice

Is it true in this example that there are as many 21's in 65 as there are 2's in 6?

$$\begin{array}{r} 3 \\ 21\overline{)651} \\ \underline{63} \end{array}$$

A HELPFUL HINT. *To find what figure to write in the quotient, think how many times the first figure in the divisor is contained in the first figure of the dividend.*

See if this hint will help you in these divisions:

	a	*b*	*c*	*d*	*e*
1.	$13\overline{)273}$	$21\overline{)861}$	$21\overline{)672}$	$31\overline{)651}$	$32\overline{)672}$
2.	$21\overline{)441}$	$22\overline{)286}$	$23\overline{)483}$	$33\overline{)693}$	$41\overline{)492}$
3.	$41\overline{)495}$	$21\overline{)444}$	$21\overline{)865}$	$21\overline{)675}$	$31\overline{)999}$
4.	$22\overline{)289}$	$23\overline{)487}$	$32\overline{)678}$	$42\overline{)462}$	$21\overline{)887}$
5.	$13\overline{)274}$	$21\overline{)882}$	$42\overline{)468}$	$31\overline{)993}$	$31\overline{)658}$

	a	*b*	*c*	*d*
6.	143 ÷ 13	684 ÷ 31	996 ÷ 31	495 ÷ 41
7.	444 ÷ 21	884 ÷ 41	887 ÷ 42	693 ÷ 61
8.	672 ÷ 21	561 ÷ 51	697 ÷ 33	679 ÷ 32
9.	467 ÷ 21	573 ÷ 51	685 ÷ 21	154 ÷ 14
10.	488 ÷ 21	684 ÷ 62	467 ÷ 42	189 ÷ 17

Checking Long Division

Cover the check of Example 1 below and see if you can check it. Then compare your work with the work in the book.

1.

```
6)547
  91 r1
```

Check:

```
  91   quotient
× 6    divisor
 546
+ 1    remainder
 547   dividend
```

A long-division example is checked in the same way that a short-division example is checked.

2. Can you explain the work that is done here?

```
     24 r3
21)507
   42
    87
    84
     3
```

Check:

```
  24   quotient
× 21   divisor
  24
 48
 504
+ 3   remainder
 507   dividend
```

Here are some division examples that do not check. Can you find where the mistakes were made?

3.

```
     31 r4
41)1275
   123
    45
    41
     4
```

Check:

```
  31
  41
  31
 124
1261
   4
1265
```

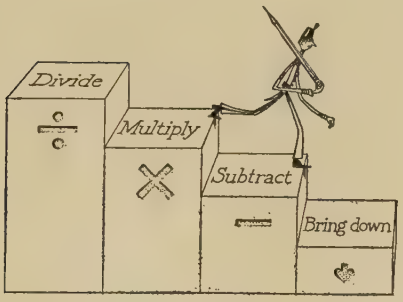
4.

```
     34 r2
42)1388
   126
    128
    126
      2
```

Check:

```
  34
  42
  68
 136
1428
   2
1430
```

Steps of Long Division



Can you run down these steps without stumbling? If you want to do good work in long division, you must be sure that you know the steps that are used in every division example. If you are not sure, review page 313.

Do these division examples: (Check each one.)

1. $61\overline{)3782}$	**4.** $62\overline{)1986}$	**7.** $71\overline{)2769}$	**10.** $41\overline{)2789}$
2. $61\overline{)2745}$	**5.** $81\overline{)3645}$	**8.** $72\overline{)1597}$	**11.** $51\overline{)2149}$
3. $52\overline{)1664}$	**6.** $72\overline{)1587}$	**9.** $53\overline{)1197}$	**12.** $42\overline{)1394}$

NOTE. *Did you notice that in the examples from 1 to 12 above, the first quotient figure was found by dividing the first figure of the divisor into the first* **two** *figures of the dividend?*

Why wasn't the first figure of the divisor divided into the first figure of the dividend to find the first figure of the quotient?

	a	*b*	*c*	*d*
13.	$966 \div 21$	$546 \div 21$	$746 \div 31$	$656 \div 41$
14.	$2857 \div 51$	$689 \div 53$	$1769 \div 61$	$5897 \div 71$
15.	$1869 \div 81$	$837 \div 31$	$2299 \div 31$	$943 \div 41$

Placing the First Quotient Figure

It is important to put the first quotient figure in the right place. If you do so, you will make fewer mistakes. This is the way to tell where to put the first quotient figure:

(1) $\begin{array}{r} 3 \\ 21\overline{)693} \end{array}$ In this example you first divide 21 into 69; so the 3 goes over the 9 of the 69.

(2) $\begin{array}{r} 2 \\ 51\overline{)1083} \end{array}$ In this example you first divide 51 into 108; so the 2 goes over the 8 of the 108.

Here is a rule that will help you:

The first quotient figure should be written over the last figure of the part of the dividend that is needed to contain the divisor.

Cover the quotient figures in the next row, copy and work the examples, then look to see if you got your first quotient figure in the right place.

(1) $\begin{array}{r} 3 \\ 33\overline{)1056} \end{array}$	(2) $\begin{array}{r} 4 \\ 42\overline{)1795} \end{array}$	(3) $\begin{array}{r} 3 \\ 41\overline{)1298} \end{array}$	(4) $\begin{array}{r} 2 \\ 41\overline{)875} \end{array}$

Work these examples: (Be sure to get the first quotient figure in the right place.)

	a	*b*	*c*	*d*
1.	$21\overline{)567}$	$32\overline{)768}$	$31\overline{)837}$	$31\overline{)2387}$
2.	$31\overline{)229}$	$41\overline{)944}$	$41\overline{)1396}$	$41\overline{)658}$
3.	$41\overline{)278}$	$42\overline{)1389}$	$51\overline{)4697}$	$51\overline{)3777}$
4.	$51\overline{)285}$	$51\overline{)3979}$	$52\overline{)1666}$	$53\overline{)689}$
5.	$61\overline{)378}$	$61\overline{)2748}$	$62\overline{)1987}$	$71\overline{)2984}$

Using Division

1. The crates in which our grocer receives eggs contain 288 eggs. How many dozens does one crate hold?

Think, "There are 12 eggs in one dozen; so 288 eggs must be as many dozens as there are 12's in 288." How do you find how many 12's there are in 288?

2. In 21 hours Mr. Green drove 651 miles. If he drove at the same speed throughout his trip, he was driving ___ miles an hour.

Think, "In 21 hours he drove 651 miles; so in one hour he drove $\frac{1}{21}$ of 651 miles." How do you find $\frac{1}{21}$ of 651 miles?

3. Mr. Gray wants to save $90 during the month of April. He thought, "I can save that much, if I save ___ dollars each day in the month."

Think, "There are ___ days in April. To save $90 in 30 days, he must save $\frac{1}{30}$ of $90 each day." How do you find $\frac{1}{30}$ of $90?

4. A teacher wishes to divide 500 beads equally among 20 children. How many beads will each child get?

Think, "Since 20 children get 500 beads, each child will get $\frac{1}{20}$ of the 500 beads." How do you find $\frac{1}{20}$ of 500?

5. Tell what you think when you work this problem: If $480 is divided equally among 40 people, how much will each person get?

6. What do you think when you solve this problem? A dealer wanted to get $104 for a radio. He was willing to let the buyer have a year in which to pay for the radio, paying the same amount each week. How much should he ask the buyer to pay each week?

A Page of Review

Tell which of these sentences are true and which are false:

1. $\frac{4}{3}$ means $4 \div 3$.
2. 7 toys at 29¢ each would cost about $2.00.
3. $\frac{2}{3}$ of an hour = 45 min.
4. $\frac{3}{4}$ of 60 = 45.
5. $63 - 19 = 54$.
6. $5 \times 605 = 3025$.
7. 1960 will be a leap year.
8. $1\frac{1}{2}$ ft. = 18 in.
9. $1\frac{3}{4}$ lb. = 24 oz.
10. $\frac{3}{4}$ ton = 500 lb.
11. $30 \times 22 = 6600$.
12. 8 bu. = 32 pk.
13. $\frac{1}{2}$ mi. = 2640 ft.
14. September has 31 days.
15. $\frac{7}{8}$ of 16 = 14.
16. 24 gal. = 6 qt.
17. $\frac{3}{4}$ is larger than $\frac{7}{8}$.
18. 1 ft. 6 in. = $1\frac{1}{2}$ ft.
19. 1 yd. 24 in. = $1\frac{2}{3}$ yd.
20. The area of a floor 20 ft. wide and 18 ft. long is 360 sq. ft.

Tell the numbers that belong in these blank spaces:

21. The World War ended in 1918. That was ___ years ago.

22. Mary was 9 yr. old on January 1, 1928. Mary was born on ___ ___, ___.

23. Margaret bought $\frac{1}{2}$ lb. of candy that cost 40¢ a pound. She gave the clerk a half dollar and received ___¢ change.

24. The clerk in Problem 23 gave Margaret ___ dimes in change.

25. George's mother sent him to the Sweet Shop for a pound of salted peanuts. The only salted peanuts they had were packed in 4-oz. boxes and sold for 15¢ a box. George took ___ boxes and paid ___¢ for the pound of peanuts.

How do you find how much milk is needed for your class? How much does the milk cost?

A Page of Review

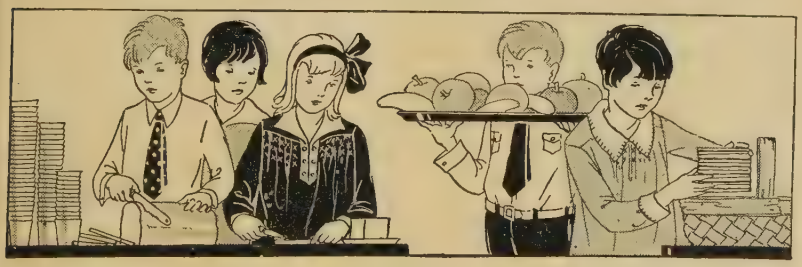
1. 205×674 **2.** 376×215 **3.** $31\overline{)963}$ **4.** $21\overline{)682}$

5. $42\overline{)1399}$ **6.** $\$1000.00 - 354.98$ **7.** $6584 - 2007$

8. *Add and check:*

$756.35, $4603.28, $405.20, $54.07, and $630.69.

9. $9\overline{)8156}$ **10.** $20\overline{)844}$ **11.** $22\overline{)486}$ **12.** $31\overline{)1974}$



13. We need 288 drinking cups for our school picnic. How many dozens shall we order?

14. If drinking cups cost 10¢ a dozen, how much will the cups for our picnic cost us?

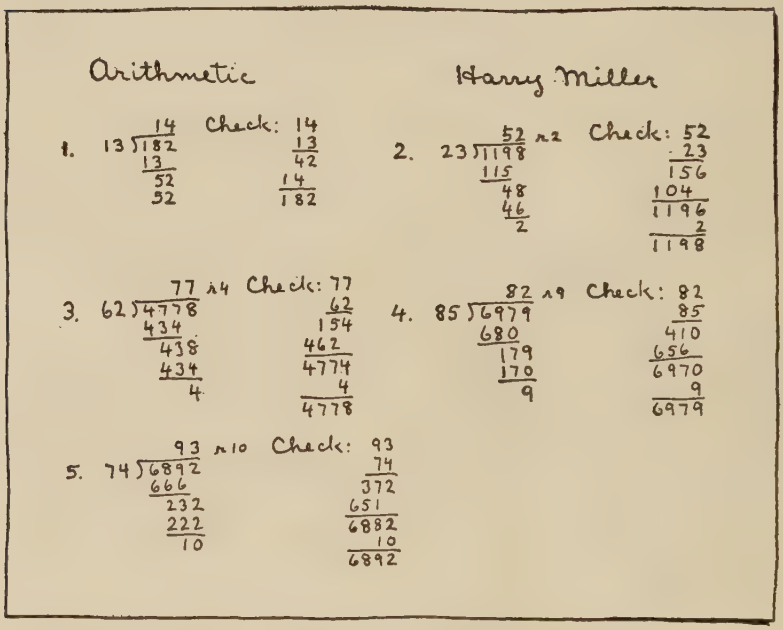
15. We also need 288 paper napkins. They come in packages of two dozen each. How many packages do we need?

16. The packages of napkins are sold two for a quarter. How much will our napkins cost us?

17. Each of the 288 children who are going to the picnic has paid 25¢ for the food we are going to have. How much money have they paid all together?

Long Division

Here is a test that Harry took in long division. What mark should he get on the paper if he gets 20 points for each example he has correct?



Solve and check these division examples:

1.	34)2085	36)1476	42)3497	43)3150
2.	47)1598	48)1498	52)2970	54)4489
3.	56)3980	57)3490	58)2499	59)1890
4.	62)4779	63)5799	65)5265	66)3564
5.	67)4154	68)408	74)6889	75)6230

Problems Using Division

Supply the missing numbers in these problems:

1. 256 children from our school are going on a picnic. Each of the busses in which we are going holds 32 children; so we'll need ___ busses.

2. The 22 girls in our sewing class are going to make little red Christmas stockings to give one to each of the 179 children in the Children's Home. If we divide the work equally, each girl must make ___ stockings, and that will leave ___ stockings for our teacher to make.

3. Our teacher had 100 sheets of colored paper. She divided them equally among the 32 children in our room. Each child received ___ sheets of paper, and there were enough sheets left over to give one extra to each of ___ children.

4. My father usually drives our car about 24 miles an hour. At that rate it will take us ___ hours to drive to Clifton, which is 48 miles from here, or ___ hours to drive to Claremont, which is 96 miles from here.

5. Our school is giving a play. The principal sent 200 tickets to each room for the pupils to sell. There are 32 children in our room. Each child should sell ___ tickets. There will then be a few tickets left, so that ___ children should volunteer to sell one extra ticket apiece.

6. My father, on his way to work, takes the trolley 6 days a week. He uses 4 trolley tickets a day. That means he uses ___ tickets a week. He has just bought a book of 50 trolley tickets. It will last him ___ weeks, and there will be ___ tickets left over.

Learning about Schools *

1. Have you any idea how much it costs to run all the schools in a state for one year? Here is a table showing what it costs in some of the states. Can you read the amounts?

California . .	$93,534,315	Michigan . . .	$72,739,880
Delaware . .	$2,465,708	New Jersey . .	$63,966,428
Indiana . .	$63,358,907	New York . . .	$183,421,841
Louisiana . .	$16,452,576	Pennsylvania . .	$109,468,075

2. Baltimore, Maryland, spent $78.77 in one year on each child in its schools. The Miller family lives in Baltimore and has 5 children. How much did it cost the city for the Miller children to go to school?

3. Springfield, Massachusetts, spent $123.70 in one year on each child in its schools. How much did it cost Springfield to pay for the schooling of 8 children for a year?

4. Birmingham, Alabama, spent $51.58 in one year on each child in its schools. How much did it spend for the 30 children in one fourth-grade room?

5. How much more did Springfield spend on each child than Baltimore spent?

6. How much more did Baltimore spend on each child than Birmingham spent?

7. How much more did it cost to educate five children in Springfield for a year than in Birmingham?

Perhaps you can find out how much your town or city pays for your schooling each year. If so, can you find how much the schooling of your class costs for a year?

Nothing New

1. Bob paid $2.00 for his boat but Billy got his for $1.49. Billy said, "I got my boat for ___ less than yours cost."

2. A city bought 61 swings for its playgrounds and paid $305 for them. Can you find the price of each swing?

3. The suits for the 23 boys in our swimming class cost $46; so each boy must pay ___ for his suit.

Divide and check:

	a	*b*	*c*	*d*	*e*
4.	71)6248	42)1008	41)3447	91)3916	81)5508
5.	81)7129	72)3170	83)2573	53)1235	62)1922
6.	73)2419	91)1547	93)3082	51)4233	71)5262
7.	42)1863	51)3631	94)1986	62)2742	61)5197
8.	31)2046	62)2730	22)318	81)5517	73)2418

Helps in Problem Solving

After you complete each of the following sentences, make up an easy problem that shows what each sentence means. The problem for the first one is made up for you.

1. If you know how much money you have and you wish to find how much more you need in order to buy a certain article, you should ___.

Problem. I have 17¢ and want to buy a 25-cent magazine. How much more money do I need?

2. If you know the cost of two articles and wish to find how much less one costs than the other, you should ___.

3. If you wish to share a number of things equally with a certain number of children, to find how many to give to each child you should ___.

4. If you know the cost of one toy and wish to know how many of them you can buy with a certain amount of money, you should ___.

5. The total amount of money you pay for the gingham for an apron depends upon the ··· and the ···

6. Your share of the expense of a picnic party depends upon the total picnic expense and the ··· To find your share of the expense, you should ···

7. To find the number of feet in a certain number of inches, you should ___.

8. To find the number of inches in a certain number of feet, you should ___.

9. To find the number of yards in a certain number of feet, you should ___.

10. To find the cost of any number of pencils when you know the cost of one, you should ___.

Oral and Written Tests

TEST I (*Oral*)

What words or numbers belong in these blank spaces?

1. 4 ft. = ___ in.
2. 4 ft. 2 in. = ___ in.
3. 60 in. = ___ ft.
4. 53 in. = ___ ft. ___ in.
5. 753 ÷ 9 = ___.
6. 9 × 67 = ___.
7. 56 + 32 = ___.
8. 5 + 9 + 9 = ___.
9. $\frac{4}{3}$ is ___ ÷ ___.
10. $\frac{8}{9}$ is ___ ÷ ___.
11. 11 : 35 is ___ min. of ___.
12. 2,605,005 is read · · ·
13. XL is the Roman numeral for ___. CX = ___.
14. $2\frac{1}{2}$ lb. = ___ oz.
15. $\frac{7}{8}$ of 56 = ___.
16. A pint of ice cream that sells for 60¢ a quart, and a 25-cent box of strawberries, will cost ___.

TEST II (*Written*)

1. Add: 638
   479
   806
   594
   386
2. Subtract 4698 from 5007.
3. Multiply 468 by 250.
4. Divide 588 by 42.
5. Divide 3086 by 93.
6. Find the cost of $2\frac{1}{2}$ dozen oranges at 48¢ a dozen.
7. Find the cost of $\frac{7}{8}$ yd. of linen at 96¢ a yard.
8. A Sunday school bought 38 boxes of candy to give to the children at Christmas time. Each box contained 9 dozen pieces of candy, which is ___ pieces of candy. How many pieces of candy did the boxes contain all together?
9. If a man drives at the rate of 24 miles an hour, how many hours must he allow himself to drive 96 miles?

Long Division Again

Here is some practice that will help you to do better work in the long divisions below. (Oral.)

Multiply:		*Subtract:*	*a*	*b*
1. 9×43	**9.** 4×99	**17.**	391	196
2. 3×86	**10.** 3×96		387	159
3. 5×93	**11.** 6×54	**18.**	494	277
4. 5×65	**12.** 4×74		465	258
5. 4×73	**13.** 7×75	**19.**	345	336
6. 7×53	**14.** 4×97		325	292
7. 8×74	**15.** 8×99	**20.**	624	135
8. 2×59	**16.** 2×85		592	118

Do each of these divisions and check:

	a	*b*	*c*	*d*	*e*
21.	$43\overline{)3926}$	$54\overline{)3402}$	$65\overline{)3455}$	$93\overline{)4949}$	$99\overline{)8029}$
22.	$59\overline{)1357}$	$75\overline{)5416}$	$97\overline{)4186}$	$96\overline{)3562}$	$85\overline{)2125}$
23.	$73\overline{)2369}$	$74\overline{)6245}$	$53\overline{)1964}$	$86\overline{)2774}$	$72\overline{)4618}$
24.	$96\overline{)3552}$	$78\overline{)1250}$	$73\overline{)3358}$	$88\overline{)2222}$	$96\overline{)4032}$
25.	$99\overline{)4455}$	$69\overline{)1656}$	$82\overline{)3126}$	$94\overline{)4042}$	$65\overline{)1040}$

26. A farmer has 448 quart boxes of lima beans ready for market. If he sells them at 20¢ a quart, how much will he receive for them?

27. A dealer offered to buy the whole lot for $3.50 a bushel. How much will the farmer receive if he sells them at that price? (First find out how many bushels he has.)

Oral Work

Without using a pencil, can you tell which is greater?

	a	*b*	*c*
1.	6×25 *or* 120	6×21 *or* 128	5×43 *or* 220
2.	8×43 *or* 376	5×35 *or* 183	5×73 *or* 364
3.	6×39 *or* 207	8×45 *or* 356	9×64 *or* 553
4.	5×38 *or* 176	7×54 *or* 394	6×82 *or* 500
5.	8×57 *or* 448	7×49 *or* 298	6×75 *or* 463
6.	4×39 *or* 136	3×83 *or* 250	2×97 *or* 183
7.	8×75 *or* 590	7×76 *or* 538	6×65 *or* 345
8.	6×46 *or* 275	9×65 *or* 562	5×87 *or* 437

Finding the Right Quotient Figure

9. Alma was doing this example: ⟶

$$\begin{array}{r} 7 \\ 61\overline{)4935} \\ \underline{427} \\ 66 \end{array}$$

She noticed that the 66 was larger than the 61, and thought, "61 is contained more than 7 times in 493. I'll change my 7 to 8." Show how she finished her example.

Whenever the remainder is larger than the divisor, try a larger quotient figure.

10. Robert was doing this example: ⟶

$$\begin{array}{r} 4 \\ 22\overline{)832} \\ \underline{88} \end{array}$$

Could he subtract? Why not? He thought, "My 4 is too large. I'll try 3. 3×22 is 66. Now I can subtract."

Next he divided 22 into 172. He got this far: ⟶

$$\begin{array}{r} 38 \\ 22\overline{)832} \\ \underline{66} \\ 172 \\ \underline{176} \end{array}$$

He couldn't go on. Why? He thought, "My 8 is too large. I'll try 7." Finish his example.

Whenever you cannot subtract, try a smaller quotient figure.

Long Division

In each of these examples you are told what you should think in finding the correct quotient figure. Read carefully and supply the numbers that belong in the blank spaces.

(1) $\boxed{27\overline{)76}}$ "2 in 7, 3 times. $3 \times 27 = 81$. Can 81 be subtracted from 76? No, 3 is too large for the quotient figure. I'll try 2. $2 \times 27 = 54$. 54 is less than 76, and so can be subtracted. 2 is the correct quotient figure."

(2) $\boxed{47\overline{)82}}$ "4 in 8, ___ times. $2 \times 47 =$ ___. Can 94 be subtracted from 82? No, so 2 is too large for the quotient figure. I'll try 1. $1 \times 47 =$ ___. 47 is less than 82. 1 is the correct quotient figure."

(3) $\boxed{23\overline{)62}}$ "2 in 6, ___ times. $3 \times 23 =$ ___. ___ is larger than 62. I'll try ___ for the quotient figure. ___ $\times 23 =$ ___. 46 is less than 62. ___ is the correct quotient figure."

(4) $\boxed{59\overline{)171}}$ "5 in 17, ___ times. $3 \times 59 =$ ___. 177 is larger than ___. I'll try ___ for the quotient figure. ___ $\times 59 =$ ___. ___ is less than 171. ___ is the correct quotient figure."

Tell the correct quotient figure in each of these divisions. Then work each example.

	a	*b*	*c*	*d*	*e*
1.	$25\overline{)67}$	$66\overline{)125}$	$53\overline{)108}$	$49\overline{)99}$	$57\overline{)104}$
2.	$34\overline{)62}$	$66\overline{)327}$	$74\overline{)286}$	$86\overline{)429}$	$95\overline{)380}$
3.	$28\overline{)49}$	$37\overline{)139}$	$46\overline{)230}$	$31\overline{)63}$	$57\overline{)335}$
4.	$22\overline{)69}$	$21\overline{)106}$	$78\overline{)385}$	$86\overline{)500}$	$96\overline{)473}$
5.	$42\overline{)87}$	$38\overline{)208}$	$45\overline{)264}$	$57\overline{)200}$	$63\overline{)493}$

Long Division

Find out whether the divisions that check are correct:

1.	81 r7 23)1870 184 30 23 7	Check: 81 23 243 162 1863 7 1870
2.	62 r34 35)2204 210 104 70 34	Check: 62 35 310 186 2170 34 2204
3.	71 23)1643 161 33 23	Check: 71 23 213 142 1633
4.	61 r5 47)2872 282 52 47 5	Check: 61 47 427 244 2867 5 2872

Divide and check:

	a	*b*	*c*	*d*	*e*
5.	28)1160	48)3890	23)1880	26)1594	37)2999
6.	36)1847	28)340	45)3465	47)3958	49)2799
7.	52)3599	56)1536	57)3848	58)2765	59)2784
8.	39)1989	64)5696	73)4975	67)5762	77)6475
9.	78)6855	68)5528	79)6728	88)5997	89)7300
10.	46)2669	55)2665	69)5589	56)4196	65)1825

Problems and Practice

1. Mr. Burns drove 544 miles, using 34 gal. of gasoline. How many miles did the car go on one gallon of gasoline?

2. A first-grade teacher has 10 boxes of beads, each box containing 50 beads, and she has 15 beads in another box. How many beads has she all together?

3. If the teacher divides the 515 beads equally among the 23 children in her room, how many beads will each child get, and how many beads will be left over?

4. If you have saved 700 pennies, how many dollars can you get for them?

5. A farmer gathered 279 eggs in one week. How many dozens of eggs was that? Were there any extra eggs? What part of a dozen is 3 eggs?

6. Corn is selling for 40¢ a dozen ears. How much will $2\frac{1}{2}$ doz. ears cost?

7. A train traveled 574 miles in 14 hours. How far did that train go in an hour?

8. If a train travels 38 miles an hour, how long will it take to go 228 miles?

Divide and check:

	a	*b*	*c*	*d*	*e*
9.	$28\overline{)315}$	$43\overline{)964}$	$34\overline{)423}$	$41\overline{)578}$	$26\overline{)1586}$
10.	$53\overline{)1187}$	$21\overline{)1085}$	$42\overline{)1389}$	$41\overline{)1279}$	$48\overline{)2990}$
11.	$13\overline{)185}$	$42\overline{)3498}$	$45\overline{)3250}$	$54\overline{)4489}$	$59\overline{)4933}$
12.	$62\overline{)2734}$	$81\overline{)5819}$	$61\overline{)5198}$	$31\overline{)2049}$	$28\overline{)1160}$

Long Division

1. 1,500 rolls were needed for a big Boy Scout banquet. If you had been the one to order the rolls, how many dozens would you have ordered?

See if you can divide 1,500 by 12 without looking at the work at the right.

Notice that the quotient is a three-figure number. Do you think this example is any harder than one with a two-figure quotient?

```
  125
12)1500
  12
  30
  24
   60
   60
```

2. See if these divisions are right so far, and finish them:

a.	*b.*	*c.*	*d.*
21? r? 24)5089 48 28 24 49 ?? ?	18? r? 35)6392 35 289 280 ?? ?? ??	21? r? 43)9254 86 65 43 ??? ??? ?	21? r? 36)7814 72 61 36 254 ??? ?

Divide and check:

	a	*b*	*c*	*d*	*e*
3.	43)9257	22)15876	36)29953	25)12926	34)21320
4.	37)4334	51)11526	42)9126	57)15200	31)26877
5.	21)7094	36)15204	51)14484	34)4250	34)15170
6.	32)3872	32)10996	58)42732	61)13857	24)10423
7.	71)1534	48)24819	82)33732	93)58032	57)42597

8. If you were asked to find the cost of 2,100 rolls at 12¢ a dozen, how would you do it?

A Language Lesson*

Here is a lesson in saying things exactly so. Read the next three sentences a few times, then see if you can say them exactly, word for word.

I want to find the cost of 6 shirts at $1.50 each.
If one shirt costs $1.50, 6 shirts will cost 6 times $1.50.
I must multiply $1.50 by 6.

1. Now say the sentences, but have 8 shirts.
2. Now say them, but have 12 books.
3. Now say them, but have 24 handkerchiefs at 25¢.
4. Now you make up one like these.

Now read the next three sentences a few times, and see if you can say them exactly without looking at the book.

I want to find how many grapefruit I can get for 90¢ at 15¢ each.
If for 15¢ I can get one grapefruit, then for 90¢ I can get as many grapefruit as there are 15's in 90.
I must divide 15 into 90.

5. Now change to balloons for 70¢ at 10¢ each.
6. Now change to pencils for 50¢ at 6¢ each.
7. Now you make up one like these.

Now see if you can learn to say the next two sentences.

If 8 plants cost $1.20, then 1 plant will cost $\frac{1}{8}$ of $1.20.
I must divide $1.20 by 8.

Now begin the sentences this way:

8. If 4 tires cost $92, · · ·
9. If 8 acres cost $640, · · ·
10. You make up one like these.

A Review Lesson

Add:

1. 4006
   207
   4005
   6007
   309

2. Divide 6284 by 6.

3. Multiply 709 by 84.

4. Subtract 985 from 3278.

Add:

5. 4678
   549
   2873
   765
   890

6. Read: 23,046,200.

7. How much must be added to 47,635 to make 88,000?

8. Divide: $71\overline{)6249}$.

9. Find the sum of \$67.32, \$64.98, \$78.94, and \$99.00.

10. How many feet are there in a quarter of a mile?

11. A grocer sells 270 loaves of bread during a week. About how many loaves do you think he sells each day? (His store is closed on Sunday.)

12. The grocer pays 6¢ a loaf for the bread and sells it for 8¢ a loaf. How much more does he get for the bread he sells during a week than he pays for it?

13. Draw a line 6 inches long. Now draw a line (*a*) one half as long; (*b*) one third as long; (*c*) two thirds as long; (*d*) one sixth as long; (*e*) five sixths as long.

14. Robert's sister goes to high school. The other day her teacher wrote this on the board, "For this week's home work read Chapters V, IX, XVII, and XIX in *The United States History*." What chapters did she want her pupils to read?

15. An airplane traveled 1,704 miles in 24 hours. How far did that plane travel in an hour?

Finding Out What You Know and What You Don't Know

TEST I. ADDITION

1.
19
19
26
75
38
47

2.
$507.69
85.43
298.76
56.84
397.69
200.05

3. Find the sum of 64, 97, 85, 603, 208, and 46.

4. Find the sum of $17.85, $2.63, $4.00, $15.75, and $103.69.

TEST II. SUBTRACTION

1. 800 − 476

2. $163.85 − 79.69

3. $50.00 − 9.63

4. 56,830 − 29,065

TEST III. MULTIPLICATION

1. 805 × 9

2. 8659 × 9

3. 63 × 200

4. 659 × 24

5. 568 × 297

TEST IV. DIVISION

1. $9\overline{)47}$

2. $8\overline{)5643}$

3. $802 \div 6$

4. $2 \div 3 = \frac{?}{?}$

5. $21\overline{)297}$

6. $51\overline{)4697}$

7. $36\overline{)1478}$

8. $53\overline{)1236}$

9. $65\overline{)3456}$

10. $48\overline{)3892}$

11. $25\overline{)12929}$

12. $\frac{5}{6} = ? \div ?$

TEST V. NUMBERS

1. Write in words: (*a*) 2,465,386; (*b*) 5,000,300.

2. Write by hundreds to 2,595, beginning 895; 995; · · ·

3. LXV is the Roman numeral ____. **4.** $\frac{2}{5}$ of 25 = ____.

TEST VI. MEASUREMENT

1. 1 min. = ____ sec.

2. $\frac{1}{8}$ pk. = ____ qt.

3. 2 tons = ____ lb.

4. $3\frac{1}{3}$ ft. = ____ in.

5. July has ___ da. **6.** Was 1918 a leap year?

7. August has ___ da.

8. June has ___ da. more than 4 wk.

9. A square one inch wide and one inch long contains one ___ ___.

10. The area of a rectangle whose dimensions are 6 ft. and 13 ft. is ___ sq. ft.

The Practice You Need

If you made any mistakes in these tests, you need practice on examples like the ones you missed. This table tells you where to find that practice.

TEST I	TEST II	TEST III	TEST IV	TEST V	TEST VI
1. p. 214–F	**1.** p. 294, Ex. 1	**1.** p. 222–G	**1.** p. 281, Exs. 17–41	**1.** p. 300	**1.** pp. 211–2
2. p. 291, Test IV	**2.** p. 263, Exs. 13–17	**2.** p. 234, Exs. 9–13	**2.** p. 285, Exs. 17–22	**2.** p. 300	**2.** p. 227
3. p. 285, Exs. 7–10	**3.** p. 293	**3.** p. 268, Ex. 8	**3.** p. 285, Exs. 17–22	**3.** p. 300	**3.** p. 227
4. p. 238, Exs. 13–16	**4.** p. 294, Ex. 5	**4.** p. 270	**4.** pp. 278–9	**4.** p. 274	**4.** p. 227
		5. p. 270	**5.** p. 315		**5.** pp. 297–8
			6. p. 317		**6.** pp. 297–8
			7. p. 322		**7.** pp. 297–8
			8. p. 325		**8.** pp. 297–8
			9. p. 328		**9.** p. 301
			10. p. 331		**10.** pp. 302–3
			11. p. 333		
			12. pp. 278–9		

Progress Test No. 5

Write just the answers to these examples on your paper. Number each answer. (Record your score.)

1. Mr. Jones paid bills of the following amounts in one week: \$564.98, \$24.37, \$.98, \$6.55, \$483.94, and \$94.50. How much did he pay all together?

2. How much more than \$178.69 is \$256.84?

3. Multiply 478 by 240.

4. $6)\underline{\$25.16}$

5. $94)\overline{4045}$

6. $48)\overline{3892}$

7. Billy was born on January 3, 1919. He is just seven years older than his brother. When was his brother born?

8. Go over this bill which Mrs. Stone received from her grocer. Are there any mistakes in it? If so, where?

EVERYMAN'S GROCERY — ROSEDALE, PA.		
$\frac{1}{2}$ doz. eggs at 50¢ a dozen	\$	25
$\frac{3}{4}$ lb. butter at 60¢ a pound		40
12 lb. sugar at 8¢ a pound		96
1 pt. vinegar at 24¢ a quart		12
	\$1	83

Standards: X, 8. Y, 6. Z, 5.

CHAPTER VI

FRACTIONS

The Peanut-Guessing Contest*

The man at the "Goodie Shop" offered a prize of $5.00 to the child who would be nearest right in guessing how many peanuts there were in his window.

1. Harry guessed 198 bags, with 235 peanuts in a bag. How many peanuts was that?

2. Here are the guesses of some of the other children. Write down the number of peanuts each guessed. One of them won the prize.

May: 200 bags, 245 peanuts in a bag.
Grace: 250 bags, 173 peanuts in a bag.
Albert: 462 bags, 198 peanuts in a bag.
Margaret: 573 bags, 179 peanuts in a bag.
Peter: 346 bags, 270 peanuts in a bag.

3. There were 384 bags, with 192 peanuts in each bag. Who won the prize?

4. If the peanuts were sold for 15¢ a bag, how much would all the peanuts be sold for?

5. If the man at the "Goodie Shop" put the peanuts into smaller bags, containing 96 peanuts, and sold them at 8¢ a bag, how much money would all the peanuts bring?

A Zero That Must Be Watched

(1) Alma said, "If you had guessed that there were 204 bags of peanuts, with 274 peanuts in each bag, how would you multiply to find how many peanuts you had guessed?"

(2) Harry said, "I'd multiply 274 by 4, by 0, and by 2 like this:" →

274
204
1 096
0 00
54 8
55,896

(3) My answer is ___ peanuts."

(4) Alma said, "I thought you would do it that way. I know a shorter way. When you multiply 274 by 0, you do not need to write all three zeros, as you did. Just write the first one, and then write the product of 2×274 on the same line with the zero, like this:" →

274
204
1 096
54 80
55,896

Is Alma's answer the same as Harry's?

(5) Harry asked, "Can any example with zero in the multiplier be done that way?"

(6) Alma said, "I'll do some examples your long way and my short way, and you can see for yourself."

Your Long Way	*My Short Way*	*Your Long Way*	*My Short Way*
354	354	589	589
308	308	103	103
2 832	2 832	1 767	1 767
0 00	106 20	0 00	58 90
106 2	109,032	58 9	60,667
109,032		60,667	

Zeros in Multiplication

Here are some multiplication examples done the short way. Pupils who do good work in arithmetic use that way. See if you can do these examples without looking at the work in the book.

1. 732	**2.** 768	**3.** 377	**4.** 346	**5.** 463
204	603	407	709	806
2 928	2 304	2 639	3 114	2 778
146 40	460 80	150 80	242 20	370 40
149,328	463,104	153,439	245,314	373,178

Copy and multiply: (Check by working again.)

	a	*b*	*c*	*d*	*e*	*f*
6.	629	716	345	713	737	539
	804	308	506	207	607	507
7.	835	694	734	254	437	706
	704	608	306	809	908	803
8.	703	678	468	489	756	897
	609	504	608	207	904	604

How many of these examples can you get right in ten minutes? Check each one by doing it again.

	a	*b*	*c*	*d*	*e*
9.	536	306	704	389	384
	20	294	368	208	800
10.	476	647	807	605	438
	305	300	954	783	700
11.	326	509	279	437	324
	409	384	607	605	4000

More Multiplying

Marie's mother sent her to the store for $2\frac{1}{2}$ lb. of meat. The meat cost 38¢ a pound. Do you know how much Marie must pay for $2\frac{1}{2}$ lb.?

This is the way Marie figured it out: ⟶

$$\begin{array}{r} 38 \\ 2\frac{1}{2} \\ \hline 19 \\ 76 \\ \hline 95 \end{array}$$

(1) The $\frac{1}{2}$ lb. will cost $\frac{1}{2}$ of 38¢, or ____¢.

(2) The 2 lb. will cost 2×38¢, or ____¢.

(3) $2\frac{1}{2}$ lb. will cost $76¢ + 19¢$, or ____¢.

Copy these examples without the work, do them, then look to see if your answers are right:

1.	**2.**	**3.**	**4.**	**5.**	**6.**
24	36	15	16	25	32
$5\frac{1}{2}$	$6\frac{1}{4}$	$5\frac{2}{5}$	$4\frac{3}{4}$	$3\frac{2}{5}$	$3\frac{3}{8}$
12	9	6	12	10	12
120	216	75	64	75	96
132	225	81	76	85	108

Find the cost of the following articles:

7. $2\frac{1}{2}$ lb. wafers at 24¢ a lb.

8. $3\frac{1}{4}$ lb. candy at 40¢ a lb.

9. $2\frac{2}{3}$ yd. lace at 30¢ a yd.

10. $3\frac{3}{4}$ lb. butter at 60¢ a lb.

11. $4\frac{1}{8}$ lb. lard at 32¢ a lb.

12. $3\frac{3}{8}$ yd. toweling at 32¢ a yd.

13. $5\frac{1}{2}$ ft. of wire at 10¢ a ft.

14. $3\frac{3}{4}$ doz. eggs at 48¢ a doz.

Do these multiplications: (Check by doing the work again.)

15.	**16.**	**17.**	**18.**	**19.**	**20.**
56	64	72	80	30	36
$3\frac{1}{8}$	$2\frac{3}{8}$	$5\frac{1}{4}$	$5\frac{3}{8}$	$6\frac{2}{5}$	$8\frac{3}{4}$

Subtract and check:

21.	**22.**	**23.**	**24.**	**25.**
4000	6000	4695	7452	7765
3754	2873	3006	659	5678

Adding and Subtracting Fractions

1. With your ruler draw a line $\frac{1}{2}$ in. long. Add $\frac{1}{2}$ in. to it. How long is the line now? $(\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1)$

2. If you need a pound of butter and have only a half pound, you must get a ___ pound more.

3. If you need a yard of lace and have only a half yard, you must get a ___ yard more.

4. With your ruler draw a line $\frac{1}{4}$ in. long. Add $\frac{1}{4}$ in. to it. How long is the line now? $(\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2})$

5. If you need a half pound of candy and have only a quarter of a pound, you must get a ___ of a pound more.

6. If you have a quarter of a pound of sugar and get a quarter of a pound more, you will then have a ___ pound all together.

7. *a.* $\frac{1}{2} + \frac{1}{2} = ?$ *b.* $\frac{1}{4} + \frac{1}{4} = ?$

8. With your ruler draw a line 1 in. long. Erase $\frac{1}{2}$ in. How much is left? $(\frac{2}{2} - \frac{1}{2} = \frac{1}{2})$

9. 2 cents + 3 cents = ___ cents.
2 fifths + 3 fifths = ___ fifths.
$\frac{2}{5} + \frac{3}{5} = \frac{?}{5}$

$$\begin{array}{r} \frac{2}{5} \\ +\ \frac{3}{5} \\ \hline \frac{5}{5} = 1 \end{array}$$

10. 3 nickels + 4 nickels = ___ nickels.
3 eighths + 4 eighths = ___ eighths.
$\frac{3}{8} + \frac{4}{8} = \frac{?}{8}$

$$\begin{array}{r} \frac{3}{8} \\ +\ \frac{4}{8} \\ \hline \frac{7}{8} \end{array}$$

11. 5 nickels − 3 nickels = ___ nickels.
5 eighths − 3 eighths = ___ eighths.
$\frac{5}{8} - \frac{3}{8} = \frac{?}{8}$

$$\begin{array}{r} \frac{5}{8} \\ -\ \frac{3}{8} \\ \hline \frac{2}{8} \end{array}$$

12. Do these examples:

$$\begin{array}{r} \frac{5}{8} \\ +\ \frac{1}{8} \\ \hline \end{array} \quad \begin{array}{r} \frac{5}{8} \\ -\ \frac{1}{8} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{4} \\ +\ \frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{4} \\ -\ \frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{6}{8} \\ +\ \frac{1}{8} \\ \hline \end{array} \quad \begin{array}{r} \frac{6}{8} \\ -\ \frac{1}{8} \\ \hline \end{array} \quad \begin{array}{r} \frac{2}{5} \\ +\ \frac{1}{5} \\ \hline \end{array} \quad \begin{array}{r} \frac{2}{5} \\ -\ \frac{1}{5} \\ \hline \end{array}$$

Adding and Subtracting Fractions

1. $\frac{1}{8}$ and $\frac{1}{8}$ and $\frac{1}{8} = \frac{?}{8}$

2. $\frac{1}{4}$ and $\frac{1}{4}$ and $\frac{1}{4} = \frac{?}{4}$

3. $\frac{1}{5}$ and $\frac{2}{5}$ and $\frac{1}{5} = \frac{?}{5}$

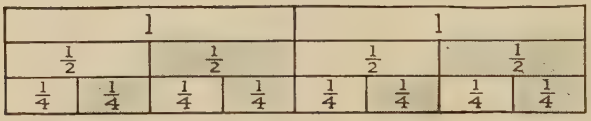
4. $\frac{2}{7}$ and $\frac{3}{7}$ and $\frac{1}{7} = \frac{?}{7}$

5. Add:

$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{9}$	$\frac{5}{12}$	$\frac{4}{16}$	$\frac{2}{5}$	$\frac{1}{6}$
$\frac{1}{8}$	$\frac{1}{4}$	$\frac{2}{10}$	$\frac{3}{9}$	$\frac{3}{12}$	$\frac{8}{16}$	$\frac{1}{5}$	$\frac{2}{6}$
$\frac{1}{8}$	$\frac{1}{4}$	$\frac{5}{10}$	$\frac{4}{9}$	$\frac{2}{12}$	$\frac{2}{16}$	$\frac{1}{5}$	$\frac{2}{6}$

6. $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \frac{?}{2}$ $\frac{3}{2} = 1\frac{1}{2}$

7. $\frac{2}{4} + \frac{2}{4} + \frac{3}{4} = \frac{?}{4}$ $\frac{7}{4} = 1\frac{3}{4}$



8. $\frac{1}{3} + \frac{2}{3} + \frac{2}{3} = \frac{?}{3}$ $\frac{5}{3} = ?$

9. $\frac{2}{5} + \frac{2}{5} + \frac{1}{5} = \frac{?}{5}$ $\frac{5}{5} = ?$

10. Add:

$\frac{3}{5}$	$\frac{2}{10}$	$\frac{4}{9}$	$\frac{3}{12}$	$\frac{5}{8}$	$\frac{5}{7}$	$\frac{2}{6}$	$\frac{3}{4}$
$\frac{2}{5}$	$\frac{8}{10}$	$\frac{3}{9}$	$\frac{8}{12}$	$\frac{2}{8}$	$\frac{4}{7}$	$\frac{3}{6}$	$\frac{4}{4}$
$\frac{3}{5}$	$\frac{3}{10}$	$\frac{5}{9}$	$\frac{4}{12}$	$\frac{3}{8}$	$\frac{2}{7}$	$\frac{3}{6}$	$\frac{2}{4}$

11. Henry has a half dollar. Alice has two quarters. Who has the greater amount of money?

12. If you practice your music lesson a quarter of an hour before school and a quarter of an hour after school, how long do you practice all together?

13. Harold picked $\frac{3}{4}$ bu. of apples. He sold $\frac{1}{4}$ bu. and gave the other ___ bu. to his mother for apple butter.

14. Subtract these fractions:

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*
$\frac{6}{8}$	$\frac{6}{7}$	$\frac{5}{9}$	$\frac{3}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{2}{4}$	$\frac{2}{2}$
$\frac{4}{8}$	$\frac{2}{7}$	$\frac{1}{9}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{1}{4}$	$\frac{1}{2}$

Equal Fractions

Look at this chart as you tell the missing numbers in Examples 1 to 16.

1. 1 is ___ halves; ___ fourths; ___ eighths.

2. $\frac{1}{2}$ is ___ fourths; ___ eighths.

3. $\frac{1}{4}$ is ___ eighths; $\frac{2}{4}$ is ___ eighths; $\frac{3}{4}$ is ___ eighths.

4. $\frac{4}{8} = \frac{?}{4}$ **5.** $\frac{2}{4} = \frac{?}{2}$ **6.** $\frac{4}{8} = \frac{?}{2}$ **7.** $\frac{1}{4} = \frac{?}{8}$

8. $\frac{3}{4} = \frac{?}{8}$ **11.** $\frac{1}{2}$ of $\frac{1}{4} = \frac{1}{?}$ **14.** $\frac{1}{8} + \frac{1}{8} = \frac{1}{?}$

9. $\frac{1}{2} = \frac{?}{8}$ **12.** $\frac{1}{2}$ of $\frac{1}{2} = \frac{1}{?}$ **15.** $\frac{2}{8} = \frac{1}{?}$

10. $\frac{1}{2} = \frac{?}{4}$ **13.** $\frac{1}{4} + \frac{1}{4} = \frac{1}{?}$ **16.** $\frac{1}{4}$ of $\frac{1}{2} = \frac{1}{?}$

17. Does $\frac{1}{2}$ of 12 equal $\frac{2}{4}$ of 12? Does $\frac{1}{2} = \frac{2}{4}$?

18. Does $\frac{1}{2}$ of 16 equal $\frac{4}{8}$ of 16? Does $\frac{1}{2} = \frac{4}{8}$?

19. Does $\frac{2}{4}$ of 16 equal $\frac{4}{8}$ of 16? Does $\frac{2}{4} = \frac{4}{8}$?

20. Does $\frac{1}{4}$ of 16 equal $\frac{2}{8}$ of 16? Does $\frac{1}{4} = \frac{2}{8}$?

21. Does $\frac{3}{4}$ of 16 equal $\frac{6}{8}$ of 16? Does $\frac{3}{4} = \frac{6}{8}$?

22. An easy way to remember that $\frac{1}{2} = \frac{2}{4}$ is to see that when both the 1 and the 2 of the fraction $\frac{1}{2}$ are multiplied by 2 like this $\frac{1 \times 2}{2 \times 2}$ we get $\frac{2}{4}$.

23. An easy way to remember that $\frac{1}{2} = \frac{4}{8}$ is to see that when both the 1 and the 2 of the fraction $\frac{1}{2}$ are multiplied by 4 like this $\frac{1 \times 4}{2 \times 4}$ we get $\frac{?}{?}$.

Tell the missing numbers in these examples:

1. $\frac{2 \times ?}{4 \times 2} = \frac{4}{8}$ **3.** $\frac{1 \times ?}{2 \times 4} = \frac{4}{8}$ **5.** $\frac{1 \times 2}{2 \times 2} = \frac{?}{4}$ **7.** $\frac{3 \times ?}{4 \times 2} = \frac{?}{8}$

2. $\frac{3 \times ?}{4 \times 2} = \frac{6}{8}$ **4.** $\frac{1 \times ?}{4 \times 2} = \frac{?}{8}$ **6.** $\frac{1 \times 4}{2 \times 4} = \frac{?}{?}$ **8.** $\frac{2 \times ?}{2 \times ?} = \frac{?}{8}$

If you multiply both of the numbers in a fraction by the same number, you get another fraction equal to the first fraction.

9. $\frac{1}{2} = \frac{?}{4}$ **10.** $\frac{2}{4} = \frac{?}{8}$ **11.** $\frac{3}{4} = \frac{?}{8}$ **12.** $\frac{1}{4} = \frac{?}{8}$ **13.** $\frac{1}{2} = \frac{?}{8}$

14. With your ruler draw a line $\frac{1}{4}$ in. long. Add $\frac{1}{2}$ in. to it. How long is the line now? $\frac{1}{4} + \frac{1}{2} = \frac{1}{4} + \frac{2}{4} = \frac{3}{4}$.

15. If you have half an apple and you get a quarter of an apple more, what part of an apple will you have all together?

16. If you practice your music lesson a quarter of an hour before school and a half hour after school, what part of an hour will you have practiced all together?

17. $\frac{1}{2} + \frac{1}{4} = ?$ $\frac{1}{4} + \frac{1}{4} = ?$ $\frac{1}{4} + \frac{1}{2} = ?$ $\frac{1}{2} + \frac{1}{2} = ?$

18. Draw a line $\frac{3}{4}$ in. long. Erase $\frac{1}{4}$ in. What is left?

19. Draw a line $\frac{3}{4}$ in. long. Erase $\frac{1}{2}$ in. What is left?

20. Donald wanted to find $\frac{1}{4} + \frac{1}{8}$. He said: "If both of those fractions were fourths, I could add them. $\frac{1}{4} + \frac{1}{4} = \frac{?}{4}$. If both of those fractions were eighths, I could add them. $\frac{1}{8} + \frac{1}{8} = \frac{?}{8}$. But in the example $\frac{1}{4} + \frac{1}{8}$, the one is a fourth and the other is an eighth. I wish I could change them so that they would both be fourths or both be eighths. Why, $\frac{1}{4}$ does equal $\frac{2}{8}$. Now I can add. $\frac{2}{8} + \frac{1}{8} = \frac{?}{8}$."

$$\frac{1}{4} = \frac{2}{8}$$
$$\frac{1}{8} = \frac{1}{8}$$
$$\frac{3}{8}$$

1. When you want to add $\frac{3}{8}$ to $\frac{1}{4}$, an easy way to do it is to think: $\frac{1}{4} = \frac{?}{8}$; $\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$.

$$\begin{array}{r} \frac{1}{4} = \frac{2}{8} \\ \frac{3}{8} = \frac{3}{8} \\ \hline \frac{?}{8} \end{array}$$

2. When you want to add $\frac{1}{4}$ to $\frac{1}{2}$, an easy way to do it is to think: $\frac{1}{2} = \frac{?}{4}$; $\frac{2}{4} + \frac{1}{4} = \frac{?}{4}$.

$$\begin{array}{r} \frac{1}{2} = \frac{2}{4} \\ \frac{1}{4} = \frac{1}{4} \\ \hline \frac{?}{4} \end{array}$$

Copy these examples and supply the missing numbers:

3. $\begin{array}{r} \frac{1}{8} = \frac{1}{8} \\ +\ \frac{1}{2} = \frac{?}{8} \\ \hline \frac{?}{8} \end{array}$ **4.** $\begin{array}{r} \frac{1}{2} = \frac{?}{8} \\ -\ \frac{1}{8} = \frac{1}{8} \\ \hline \frac{?}{8} \end{array}$ **5.** $\begin{array}{r} \frac{7}{8} = \frac{7}{8} \\ -\ \frac{1}{2} = \frac{?}{8} \\ \hline \frac{?}{8} \end{array}$ **6.** $\begin{array}{r} \frac{3}{4} = \frac{3}{4} \\ -\ \frac{1}{2} = \frac{?}{4} \\ \hline \frac{?}{4} \end{array}$

Do these examples:

7. $\begin{array}{r} \frac{1}{4} \\ +\ \frac{1}{2} \\ \hline \end{array}$ **8.** $\begin{array}{r} \frac{3}{8} \\ -\ \frac{1}{4} \\ \hline \end{array}$ **9.** $\begin{array}{r} \frac{7}{8} \\ -\ \frac{1}{4} \\ \hline \end{array}$ **10.** $\begin{array}{r} \frac{3}{8} \\ +\ \frac{1}{2} \\ \hline \end{array}$ **11.** $\begin{array}{r} \frac{1}{8} \\ +\ \frac{3}{4} \\ \hline \end{array}$ **12.** $\begin{array}{r} \frac{1}{2} \\ -\ \frac{1}{4} \\ \hline \end{array}$

13. $\begin{array}{r} \frac{5}{8} \\ +\ \frac{1}{4} \\ \hline \end{array}$ **14.** $\begin{array}{r} \frac{5}{8} \\ -\ \frac{1}{4} \\ \hline \end{array}$ **15.** $\begin{array}{r} \frac{5}{8} \\ -\ \frac{1}{2} \\ \hline \end{array}$ **16.** $\begin{array}{r} \frac{3}{4} \\ -\ \frac{5}{8} \\ \hline \end{array}$ **17.** $\begin{array}{r} \frac{3}{4} \\ -\ \frac{3}{8} \\ \hline \end{array}$ **18.** $\begin{array}{r} \frac{3}{8} \\ +\ \frac{1}{4} \\ \hline \end{array}$

19. Harry walked $\frac{1}{4}$ mi. to the store and then $\frac{1}{8}$ mi. to the mill. How far did he walk in all?

20. Mrs. Mack asked for $\frac{3}{4}$ lb. of cheese. The grocer gave her $\frac{7}{8}$ lb. Mrs. Mack got ___ lb. more than she asked for.

21. Mrs. Brown has $\frac{5}{8}$ lb. of butter. If she uses $\frac{1}{4}$ lb. for a cake, how much butter will she have left?

Choosing Correct Answers *

Four answers are given to each of the following questions, but only one answer is correct. Tell which one it is.

1. Eight times zero equals what? *8 0 80 1*

2. Eight plus zero equals what? *9 0 8 80*

3. When you find a product, what do you do?

add *multiply* *subtract* *divide*

4. What is the area of a rectangle 8 in. long and 4 in. wide? *2 sq. in.* *4 sq. in.* *16 sq. in.* *32 sq. in.*

5. $2\frac{1}{2}$ lb. is how many ounces? *32 16 48 40*

6. How many months have 31 days each? *1 4 7 8*

7. How is the number five million, five hundred five written in figures?

5,505,000 *5,005,005* *5,000,505* *5,050,005*

8. Which of these fractions equals one half? $\frac{5}{6}$ $\frac{1}{3}$ $\frac{2}{4}$ $\frac{2}{6}$

9. What is the answer to this example? $5\overline{)2547}$

$59\frac{2}{5}$ *$509\frac{2}{5}$* *$590\frac{2}{5}$* *$5009\frac{2}{5}$*

10. \$20.00 is worth how many dimes? *20 200 2,000 20,000*

11. What is the change from a 10-dollar bill after a purchase amounting to \$3.77? *\$7.33 \$6.33 \$6.23 \$7.23*

12. What does XLV mean? *40 55 65 45*

13. What does LXVIII mean? *68 63 43 48*

14. What is the answer to this example? $63\overline{)819}$

11 r23 *13* *14 r37* *11 r16*

15. How many minutes are $3\frac{3}{4}$ hours? *180 195 325 225*

Addition and Division Tests

Add and check:

TEST I

1. \$304.04	**2.** \$675.48	**3.** \$679.45	**4.** \$654.87
76.54	9.34	6.34	67.95
382.67	768.54	76.54	832.74
28.43	76.87	834.78	3.85
954.76	9.37	9.67	67.93
8.26	542.08	90.09	276.54

TEST II

1. \$547.89	**2.** \$987.65	**3.** \$876.37	**4.** \$963.28
65.54	6.54	95.43	475.83
8.69	86.32	6.89	26.95
7.38	7.98	632.76	4.83
654.86	4.67	8.32	37.59
32.75	.05	49.74	86.86

Divide and check:

TEST III

1. $41\overline{)902}$	**5.** $20\overline{)843}$	**9.** $31\overline{)845}$	**13.** $32\overline{)387}$
2. $22\overline{)1188}$	**6.** $21\overline{)8841}$	**10.** $31\overline{)6982}$	**14.** $32\overline{)1097}$
3. $65\overline{)1040}$	**7.** $41\overline{)4973}$	**11.** $61\overline{)673}$	**15.** $61\overline{)1384}$
4. $64\overline{)2048}$	**8.** $62\overline{)684}$	**12.** $34\overline{)4250}$	**16.** $93\overline{)58032}$

TEST IV

1. $21\overline{)701}$	**5.** $44\overline{)937}$	**9.** $51\overline{)115}$	**13.** $71\overline{)153}$
2. $42\overline{)9114}$	**6.** $54\overline{)7344}$	**10.** $41\overline{)9635}$	**14.** $82\overline{)3370}$
3. $34\overline{)4258}$	**7.** $32\overline{)6912}$	**11.** $32\overline{)7872}$	**15.** $92\overline{)2926}$
4. $32\overline{)3872}$	**8.** $32\overline{)10976}$	**12.** $61\overline{)13847}$	**16.** $93\overline{)58039}$

Review Problems

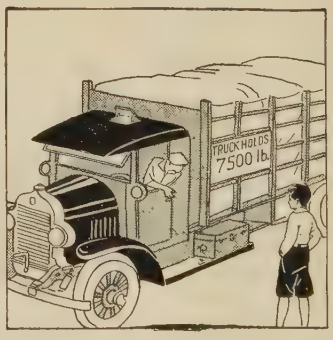
1. I watched mother weigh my baby sister. She put the blanket on the scale first, and found it weighed $2\frac{1}{4}$ lb. Then she put the baby on the blanket. The scale showed $18\frac{1}{4}$ lb. Do you know how much our baby weighs?

2. How many Christmas seals are there in a sheet that is 8 seals wide and 9 seals long?

3. When we go to see my grandmother, my father and mother each have to pay $3.98 railroad fare. They need pay only half fare for me. Do you know how much it costs for all three of us to go to my grandmother's?

4. If my father gives the agent a 20-dollar bill when he buys the tickets, how much change should he receive?

5. My brother and I saw this truck. My brother said, "That truck holds 4 tons." Does it?



6. Tom wants to save enough money to buy a bicycle that costs $22.75. He earns and saves 65¢ a day; so how many days will it take him to save enough to buy the bicycle? If he works 6 days a week, about how many weeks will it be before he can buy the bicycle?

7. Tom started to save on the first Monday in March. By looking at the calendar, can you tell Tom the date on which he will be able to buy the bicycle?

8. My father bought a new automobile for $880 and two extra tires for $17.50 each. How much did he pay in all?

A Practice Page

Multiply and check by doing the examples again:

1. 536 × 208 **2.** 54 × $1\frac{1}{2}$ **3.** 408 × 56 **4.** 32 × $2\frac{3}{8}$ **5.** 250 × 20

Subtract and check:

6. 5000 − 2759 **7.** 4683 − 307 **8.** 2654 − 98 **9.** 8765 − 3987 **10.** \$5.63 − 2.08

Divide and check:

11. $54\overline{)648}$ **12.** $64\overline{)2056}$ **13.** $34\overline{)776}$

14. $22\overline{)1198}$ **15.** $41\overline{)962}$

16. Does $\frac{3}{4}$ of 16 equal $\frac{6}{8}$ of 16? Does $\frac{3}{4}$ equal $\frac{6}{8}$?

Supply the missing numbers:

17. $\frac{1}{2} = \frac{?}{4} = \frac{?}{8}$ **18.** $\frac{4}{8} = \frac{?}{4}$ **19.** $\frac{1}{2} = \frac{?}{4}$

20. $\frac{1}{2}$ of $\frac{1}{4} = \frac{1}{?}$ **21.** $\frac{1}{2} + \frac{1}{2} = ?$ **22.** $\frac{5}{4} = 1\frac{?}{?}$

23. $\frac{3}{4} = \frac{?}{8}$ **24.** $\frac{3}{8} + \frac{1}{8} = \frac{?}{8} = \frac{1}{?}$ **25.** $\frac{5}{10} = \frac{1}{?}$

---

26. *a.* $\frac{3}{8} + \frac{2}{8} + \frac{5}{8} = \frac{?}{8} = ?$ *b.* $\frac{3}{5} + \frac{2}{5} + \frac{1}{5} = \frac{?}{5} = ?$

27. *a.* $\frac{7}{4} - \frac{3}{4} = \frac{?}{4} = ?$ *b.* $\frac{5}{3} - \frac{2}{3} = \frac{?}{3} = ?$

28. $\frac{2}{4} - \frac{1}{4} = \frac{?}{4}$ **29.** $\frac{7}{8} - \frac{4}{8} = \frac{?}{8}$ **30.** $\frac{3}{4} + \frac{2}{4} = \frac{?}{4} = ?$

---

31. 2 da. = ___ hr.

32. 4 wk. = ___ da.

33. 4 hr. = ___ min.

34. 7 min. = ___ sec.

35. 24 bu. = ___ pk.

36. 36 ft. = ___ yd.

37. 1 mi. = ___ ft.

38. 4 lb. = ___ oz.

39. 4 ton = ___ lb.

40. 4,690,472 is read ···

41. $2\frac{1}{2}$ tons = ___ lb.

42. 10 ft. = ___ yd.

43. Mary has $\frac{7}{8}$ yd. of ribbon. If she uses $\frac{1}{4}$ yd. of it, how much will she have left?

Zero in the Quotient

$25\overline{)5075}$

Ruth had this division example in an arithmetic test. Could you have done it? Try it and see. This is the way Ruth did it:

(1) She did the first four steps like this: → Tell what the four steps were.

$$\begin{array}{r} 2 \\ 25\overline{)5075} \\ 50 \\ \hline 7 \end{array}$$

(2) Then she thought, "25 in 7 goes zero times." She wrote the 0 in the quotient. Then she brought down the 5.

$$\begin{array}{r} 20 \\ 25\overline{)5075} \\ 50 \\ \hline 75 \end{array}$$

(3) Then she finished the example this way: →

Check the example to see if Ruth's answer is correct.

$$\begin{array}{r} 203 \\ 25\overline{)5075} \\ 50 \\ \hline 75 \\ 75 \\ \hline \end{array}$$

Finish these examples:

1.
$$\begin{array}{r} 20? \\ 36\overline{)7344} \\ 72 \\ \hline 144 \\ ??? \\ \hline \end{array}$$

2.
$$\begin{array}{r} 20? \\ 42\overline{)8652} \\ 84 \\ \hline 252 \\ ??? \\ \hline \end{array}$$

3.
$$\begin{array}{r} 20? \text{ r?} \\ 56\overline{)11414} \\ 112 \\ \hline 21? \\ ??? \\ \hline ?? \end{array}$$

4. $32\overline{)9859}$ **5.** $51\overline{)20716}$ **6.** $61\overline{)30999}$

Something to think about: In every long-division example the last figure of the quotient is directly above the last figure of the dividend.

Practice with Zeros

Divide and check:

	a	*b*	*c*	*d*
1.	$35\overline{)7232}$	$42\overline{)8663}$	$54\overline{)11056}$	$63\overline{)12743}$
2.	$44\overline{)9056}$	$46\overline{)9558}$	$65\overline{)13546}$	$56\overline{)11638}$
3.	$64\overline{)19607}$	$56\overline{)22556}$	$63\overline{)31960}$	$74\overline{)37642}$
4.	$83\overline{)41767}$	$92\overline{)37074}$	$66\overline{)33462}$	$49\overline{)24857}$
5.	$57\overline{)34632}$	$46\overline{)18650}$	$57\overline{)23083}$	$75\overline{)45639}$

If you need more practice, do Examples 6 to 10.

6.	$75\overline{)30254}$	$86\overline{)34753}$	$95\overline{)76558}$	$89\overline{)71840}$
7.	$79\overline{)63372}$	$78\overline{)62498}$	$68\overline{)41007}$	$97\overline{)58298}$
8.	$89\overline{)62390}$	$83\overline{)75921}$	$78\overline{)62831}$	$93\overline{)56031}$
9.	$87\overline{)52587}$	$96\overline{)67296}$	$79\overline{)39621}$	$39\overline{)27339}$
10.	$38\overline{)26831}$	$79\overline{)47779}$	$87\overline{)60987}$	$58\overline{)46816}$

Zeros That Sometimes Cause Trouble

Here are some examples that contain zeros. Try to get every one correct.

1. $8 + 0 = ?$ **2.** $8 \times 0 = ?$ **3.** $8 - 0 = ?$

4. $\begin{array}{r} 6004 \\ -\ 3875 \\ \hline \end{array}$ **5.** $\begin{array}{r} 4683 \\ -\ 2009 \\ \hline \end{array}$ **6.** $\begin{array}{r} 305 \\ \times\ 287 \\ \hline \end{array}$ **7.** $\begin{array}{r} 368 \\ \times\ 209 \\ \hline \end{array}$

8. $\begin{array}{r} 306 \\ \times\ 809 \\ \hline \end{array}$ **9.** $\begin{array}{r} 368 \\ \times\ 250 \\ \hline \end{array}$ **10.** $9\overline{)1836}$ **11.** $8\overline{)245}$

12. $23\overline{)4753}$ **13.** $34\overline{)7056}$ **14.** $45\overline{)9356}$

Two Zeros in the Quotient

These are all correct. See if you can explain them.

1.
```
   2004
34)68136
   68
   136
   136
```

2.
```
   2002
43)86086
   86
   086
    86
```

3.
```
   2003
45)90135
   90
   135
   135
```

Do each of these examples completely:

4.
```
   3???
34)102136
   102
    1??
    ???
```

5.
```
   ???? r?
25)75127
   75
    1??
    ???
      ?
```

6.
```
   ???? r?
35)140152
   140
    1??
    ???
     ??
```

Divide and check:

	a	*b*	*c*
7.	47)94188	36)72216	35)70070
8.	28)56058	37)74083	46)92146
9.	29)58156	39)11817	54)216054
10.	31)93157	28)56114	31)93106
11.	32)64039	45)90132	87)61125
12.	38)228076	28)140056	58)464239
13.	76)608347	85)765549	58)116225

Final Zero in the Quotient

Making Aprons

The 15 girls in our sewing class are going to make aprons. We are not all the same height; so of course we do not each need the same amount of material. Here are the numbers of inches needed by the girls in our three groups:

1st Group	*2d Group*	*3d Group*
23	23	24
23	23	23
25	25	25
24	26	27
27	24	25

1. How many inches of material are needed by each group? by the whole class?

The teacher asked me to buy the material for all the aprons. How would you find out how many yards I needed to ask for? Can you divide 367 by 36? This is the way I did it:

(1) I wrote my example and did the first four steps like this: (Do you know why I divided by 36?) Can you explain those four steps?

(2) Then I thought, "36 in 7, zero times and 7 over." I wrote the 0 in the quotient above the 7.

(3) I needed ___ yd. and ___ in.

(4) My teacher said, "If I were you, I'd ask for $10\frac{1}{4}$ yd." Do you know why she said that?

$$\begin{array}{r} 1 \\ 36\overline{)367} \\ 36 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 10 \\ 36\overline{)367} \\ 36 \\ \hline 7 \end{array}$$

2. Now see if you can divide 368 by 36.

3. Divide 385 by 36; 395 by 36; 396 by 36; 398 by 36.

Final Zero in Quotient

Explain each of these examples. Then copy the examples and see if you can work them without looking at the book. *Remember:* The last figure of the quotient must always be written above the last figure of the dividend.

1.
$$\begin{array}{r} 20\ \text{r}4 \\ 35\overline{)704} \\ 70 \\ \hline 4 \end{array}$$

2.
$$\begin{array}{r} 210\ \text{r}3 \\ 36\overline{)7563} \\ 72 \\ \hline 36 \\ 36 \\ \hline 3 \end{array}$$

3.
$$\begin{array}{r} 310\ \text{r}6 \\ 45\overline{)13956} \\ 135 \\ \hline 45 \\ 45 \\ \hline 6 \end{array}$$

4.
$$\begin{array}{r} 210 \\ 28\overline{)5880} \\ 56 \\ \hline 28 \\ 28 \\ \hline 0 \end{array}$$

5.
$$\begin{array}{r} 310\ \text{r}20 \\ 37\overline{)11490} \\ 111 \\ \hline 39 \\ 37 \\ \hline 20 \end{array}$$

6.
$$\begin{array}{r} 210\ \text{r}15 \\ 46\overline{)9675} \\ 92 \\ \hline 47 \\ 46 \\ \hline 15 \end{array}$$

Divide and check:

	a	*b*	*c*	*d*
7.	$27\overline{)546}$	$28\overline{)847}$	$29\overline{)1160}$	$63\overline{)2520}$
8.	$75\overline{)1500}$	$93\overline{)3720}$	$28\overline{)5656}$	$24\overline{)72096}$
9.	$48\overline{)966}$	$35\overline{)1400}$	$39\overline{)1958}$	$75\overline{)4508}$
10.	$53\overline{)1060}$	$48\overline{)1920}$	$21\overline{)1050}$	$21\overline{)1051}$
11.	$75\overline{)6000}$	$32\overline{)1920}$	$32\overline{)1921}$	$32\overline{)1922}$
12.	$87\overline{)4350}$	$43\overline{)3010}$	$43\overline{)3011}$	$43\overline{)3012}$

Problems without Numbers

1. If you know how much one pound of meat costs, how can you find the cost of half a pound?

2. If you know the cost of a quart of vinegar, how can you find the cost of a gallon of vinegar?

3. If you are sent to the store for a half pound of tea and find that the grocer has only 5-oz. and 9-oz. packages, which size package would you take?

4. If you know the cost of a pound of nuts, how can you find out how much change you will get after buying two pounds of nuts?

5. If you know the cost of each of four different articles that you have bought, how can you find the cost of all four articles?

6. If you know the price of a box of soap containing 6 bars, how can you find the cost of one bar? of 2 bars?

7. If you know the cost of a pound of butter, how can you find the cost of 4 oz. of butter?

8. If you know the cost of a dozen eggs, how can you find the cost of 4 eggs?

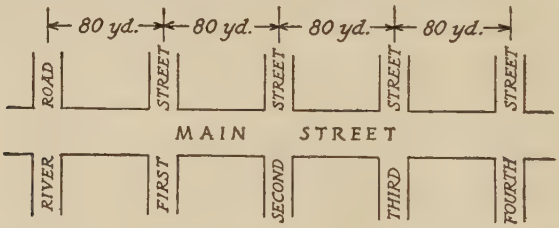
9. If you know how many weeks it is before school closes, how can you find out how many days it is?

10. How can you find out how many weeks there are in the month of November?

11. If you know the length of a field in feet, how can you find its length in yards?

12. If you know the length of a field in yards, how can you find its length in feet?

Billy timed himself and found he could walk from River Road to First Street, a distance of 80 yd., in 1 minute. We say that Billy's *rate* of walking is 80 yd. a minute.



1. How far could Billy walk in 2 minutes? in 3 minutes? 4 minutes? 5 minutes?

2. How long would it take Billy to walk from River Road to Second Street? to Third Street? to Fourth Street?

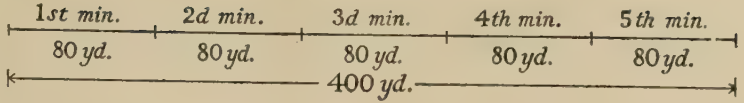
3. Fred's rate of walking is 40 yd. a minute. How far would Fred walk in 2 minutes? in 3 minutes? 4 minutes? 5 minutes? 10 minutes?

4. How long would it take Fred to walk from First Street to Second Street? from First Street to Third Street?

5. You may wish to find out how many yards you can walk in a minute. (Estimate before you measure.)

6. Mr. Otis drives his car at the rate of 25 miles an hour. How far does he drive in 2 hours? in 4 hours? in 6 hours? in 10 hours?

7. Albert wondered how long it would take him to walk from his house to the mail box. He thought: "It's about 400 yards down there. I walk about 80 yards a minute." Then he drew a diagram like the one shown on the next page. Can you explain it? Begin this way: "I can walk 80 yd. the 1st minute, another 80 yd. the 2d minute, another 80 yd. the 3d minute, and so on; so to walk 400 · · · "



8. If Billy walks at the rate of 80 yd. a minute, how long would it take him to walk 480 yd.? 640 yd.? 720 yd.? 960 yd.? 1200 yd.?

9. If Billy walks for 5 minutes at the rate of 80 yd. a minute, how far will he go?

10. Tell how far Billy will go at the rate of 80 yd. a minute if he walks for 6 minutes; 7 min.; 9 min.; 12 min.

11. Teddy walked for 6 minutes and went 540 yards. Can you tell how many yards he went each minute? When you find how many yards he went each minute, you are finding his *rate* of walking.

12. Find the rate of a boy who walked for 6 minutes and went 486 yd.; 552 yd.; 510 yd.

13. If Mr. Jones drives his car at the rate of 40 miles an hour, how far will he travel in 5 hours? Can you draw a diagram to show this?

14. An airplane traveled 474 miles in 6 hours. Its rate is ___ miles an hour. Can you draw a diagram to show this?

15. It is just 200 miles from Harrisburg, Pennsylvania, to New York City. How long would it take to go from Harrisburg to New York City, driving at a rate of 25 miles an hour? Can you show this in a diagram?

16. It is 730 miles by air route from Chicago to New York City. Could an airplane traveling at 95 miles an hour make the trip in 8 hours?

Estimating Answers *

1. If oranges cost 49¢ a dozen, will 7 dozen cost about $1.50, $3.50, or $5.50?

2. If six boys fold 598 circulars in a half hour, does each boy fold about 50, 75, or 100 circulars in that time?

3. If you hand a clerk a 20-dollar bill after buying an article for $11.98, will your change be about $8.00, $9.00, or $10.00?

4. If you buy a suit for $14.98, a hat for $3.49, and a sweater for $5.49, will they all cost about $22.00, $24.00, or $22.50?

5. If a photographer sells pictures for $3.50 a half dozen, does one picture cost about 30¢, 40¢, or 60¢?

6. If you need 6 pieces of cretonne 17 inches long to cover a box, will you buy about 12 yd., 6 yd., or 3 yd. of cretonne?

7. If you buy 500 lb. of coal at $12.10 a ton, will you pay about $6.00, $4.00, or $3.00 for it?

8. If strawberries were selling for 19¢ a box, would 35 boxes cost about 70¢, $7.00, or $70.00?

9. If you get 80 in arithmetic, 85 in spelling, and 91 in writing, will your average be about 80, 85, or 91?

10. If a floor is $29\frac{3}{4}$ ft. long and 24 ft. wide, is the area of the floor about 360 sq. ft., 480 sq. ft., or 720 sq. ft.?

Do you always estimate the answer to a problem? All good students do, because it helps them to know whether the answer they got is about what it should be.

The Five and Ten Cent Store *

1. Marie earned 50¢ last Saturday. Her mother told her that she might spend half of it, which is ___¢.

2. Marie went down to the Five and Ten Cent Store. She needed some pencils; so she decided to get some that were marked "2 for 5¢." Marie wanted four pencils. She thought, "2 pencils cost 5¢; so 4 pencils, which are 2 times 2 pencils, will cost 2 times 5¢, or ___¢." Was Marie right?

3. Then she saw some ribbon marked "2 yd. for 5¢." She wanted a yard of that to trim her doll's hat. She thought, "Two yards cost 5¢. 1 yard will cost $\frac{1}{2}$ of 5¢, which is ___¢." Marie gave the clerk a nickel, and got 2¢ change. How much did the clerk charge her for the yard of ribbon? Why do you think she had to pay 3¢ instead of $2\frac{1}{2}$¢?

4. Marie had now spent ___¢ for pencils and ___¢ for ribbon, and had ___¢ left.

5. She saw some little doll dishes marked "2 for 5¢." She wanted a half dozen of those. How much would they have cost? Had she enough money to buy them?

6. Then she saw some other dishes marked "3 for 5¢." She asked for a half dozen of those. How much did they cost? How much money had she left?

7. She saw some paper flowers marked "3 for 5¢." She thought, "One of those will cost $\frac{1}{3}$ of 5¢, or ___¢." What would the clerk charge her for one? Had she enough money to buy one? Would she have any money left?

Oral Work with Fractions

1. If a cake is cut into 16 equal parts, 1 of those parts is called ___ sixteenth of the cake; 2 of those parts are ___ sixteenths of the cake.

2. What part of the cake are 3 parts? 5 parts? 7 parts? 10 parts?

3. If a pound of sugar is divided into 16 equal parts, each part weighs an ___.

4. One ounce of sugar is one ___ of a pound of sugar.

5. What part of a pound is 4 ounces? 8 oz.? 2 oz.?

6. How many ounces are there in $\frac{1}{8}$ lb.? $\frac{3}{8}$ lb.? $\frac{5}{8}$ lb.?

7. What part of a foot is 1 in.? 6 in.? 3 in.? 2 in.?

8. How many inches are there in $\frac{1}{2}$ yd.? $\frac{1}{4}$ yd.? $\frac{3}{4}$ yd.?

9. What part of a yard is 1 ft.? 2 ft.? 18 in.? 9 in.?

10. How many cents are there in $\frac{1}{4}$ dollar? $\frac{3}{4}$ dollar?

11. How many cents are there in $\frac{1}{2}$ dime? $\frac{1}{10}$ dime?

12. What part of a dollar is 1¢? 50¢? 70¢? 20¢? 60¢?

13. How many pints are there in $\frac{1}{2}$ qt.? $\frac{1}{2}$ gal.? $\frac{1}{4}$ gal.?

14. How many quarts are there in $\frac{1}{2}$ pk.? $\frac{1}{4}$ pk.? $\frac{1}{8}$ bu.?

15. How many pounds are there in $\frac{1}{2}$ ton? $\frac{1}{4}$ ton? $\frac{3}{4}$ ton?

16. What part of a ton is 1000 lb.? 500 lb.? 1500 lb.?

17. What part of a week is 1 da.? 2 da.? 4 da.?

18. What part of an hour is 15 min.? 30 min.? 45 min.?

19. How many minutes are there in $\frac{1}{2}$ hr.? $\frac{1}{3}$ hr.? $\frac{2}{3}$ hr.?

20. $\frac{1}{2}$ in. + $\frac{1}{2}$ in. = ___ in.

21. $\frac{1}{4}$ lb. + $\frac{1}{4}$ lb. = ___ lb.

22. $\frac{1}{2}$ ton + $\frac{1}{4}$ ton = ___ ton.

23. $\frac{1}{4}$ ft. + $\frac{1}{4}$ ft. = ___ ft.

Oral Review

1. $55 - 38$ **2.** $71 - 63$ **3.** $53 - 45$ **4.** $79 + 83$

5. $9 + 6 + 8 + 7$ **6.** $8 + 7 + 5 + 8$ **7.** $5 + 8 + 9 + 7$

8. $10 \times 46 = ?$ **11.** $100 \times 75 = ?$

9. $63 \div 8 = ?$ **12.** $76 \div 9 = ?$

10. $57 \div 6 = ?$ **13.** $54 \div 7 = ?$

Give just the quotient figure in each of these examples:

14. $34\overline{)38}$ **15.** $27\overline{)63}$ **16.** $34\overline{)167}$ **17.** $33\overline{)67}$ **18.** $24\overline{)151}$

19. $65\overline{)447}$ **20.** $29\overline{)42}$ **21.** $83\overline{)579}$ **22.** $47\overline{)93}$ **23.** $25\overline{)115}$

24. The length and width of a rectangle are called its ___.

25. The area of a rectangle 9 ft. wide and 2 ft. long is ___ square feet.

26. $\frac{1}{4}$ of any object is one of the ___ equal parts into which it is divided.

27. $\frac{3}{4}$ of an object is ___ of the ___ equal parts into which it is divided.

28. 8 oz. equals one ___ pound; 4 oz. equals one ___ pound; 1 pt. = $\frac{1}{?}$ qt.; 1 qt. = $\frac{1}{?}$ gal.

29. Find the cost of $\frac{1}{8}$ lb. of candied fruit at 80¢ a pound.

30. How many $\frac{1}{4}$ pounds are there in $\frac{1}{2}$ lb.?

31. Mary bought $\frac{1}{2}$ lb. of fudge and $\frac{1}{4}$ lb. of caramels. How much candy had she in all?

32. Find the cost of $1\frac{1}{2}$ lb. of wafers at 24¢ a pound.

33. Berries are selling for 24¢ a quart. About how much will 4 qt. cost?

34. When the mercury in a thermometer rises, is it getting warmer or colder?

Written Review

1.
54
27
98
69
58
77
46

2.
9
69
87
58
34
99
75

3.
7
76
39
83
5
99
88

Subtract and check:

4. 80,137 − 34,542

5. 61,534 − 51,561

6. 80,134 − 11,957

7. 96,126 − 20,759

Multiply and check:

8. 76 × 89

9. 407 × 65

10. 409 × 706

11. 4568 × 9

12. 285 × 360

Divide and check:

13. 9)68753

14. 8)75692

15. 7)56987

16. 5)60546

17. 43)144

18. 43)4914

19. 21)14890

20. 82)14618

21. 67)20236

22. 47)9543

23. 32)9826

24. 23)69115

25. Find the sum of the following amounts of money: \$125.67, \$324.89, \$7.76, \$81.90.

26. Mr. Cox had \$725.73 in the bank. He drew out \$475.00. How much money had he left in the bank?

27. Bertha received \$10.00 for a birthday present. She bought a doll for \$3.75 and a sweater for \$4.98. How much money had she left?

28. Find the cost of 12 doz. lemons at 36¢ a dozen and 12 lb. of sugar at 9¢ a pound.

29. Tell how to divide \$45 equally among 15 boys.

30. Find the average of 16, 18, 20, and 19.

31. Which of the following fractions are equal?

$\frac{1}{4}$ $\frac{7}{8}$ $\frac{1}{2}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{3}{4}$

Progress Test No. 6

Write just the answers to these examples on your paper. Number each answer. (Record your score.)

1.
$$\begin{array}{r} \$465.89 \\ 297.65 \\ 54.00 \\ 270.49 \\ 69.05 \\ \underline{876.34} \end{array}$$

2. $\$5000.00 - \$674.33 = ?$

Multiply:

3. 407×298

4. 648×205

5. $64 \times 3\frac{1}{8}$

6. Tell which of the following fractions are equal.

$\frac{1}{4} \quad \frac{1}{2} \quad \frac{2}{8} \quad \frac{1}{3}$

7. $\frac{1}{8} + \frac{1}{4} = ?$

8. $\frac{1}{2} - \frac{1}{4} = ?$

9. Add:
$$\begin{array}{r} \frac{1}{8} \\ \frac{3}{8} \\ \underline{\frac{2}{8}} \end{array}$$

10. Divide 7513 by 23.

11. A rectangle 2 ft. wide and 4 ft. long contains ___ square feet.

12. *The Boys' Nature Magazine* sells for $2.00 a year or 20¢ a monthly copy. How much is saved in a year by taking the magazine for a year instead of buying a single copy each month?

Standards: X, 12. Y, 9. Z, 7.

CHAPTER VII

LONG DIVISION AND FRACTIONS

Division with Three Figures *

Harold's teacher asked him to find how many square feet there are in 300 sq. in.

Harold thought, "There are 144 sq. in. in 1 sq. ft.; so in 300 sq. in. there are as many square feet as there are 144's in 300. To find how many 144's there are in 300, I'll have to divide 300 by 144." Can you do it? Try it.

This is the way Harold divided 300 by 144. Can you explain his work? In 300 sq. in. there are ___ sq. ft. and ___ sq. in. over.

```
      2
144)300
    288
     12
```

Study these examples. Then copy the examples and see if you can work them without looking at the book. Check each one.

1.
```
      2 r97
235)567
    470
     97
```

2.
```
     21
356)7476
    712
     356
     356
```

3.
```
     15 r125
215)3350
    215
    1200
    1075
     125
```

4.
```
    103 r300
375)38925
    375
     1425
     1125
      300
```

5.
```
     215
325)69875
    650
     487
     325
     1625
     1625
```

6.
```
     210 r134
516)108494
    1032
     529
     516
      134
```

Division with Three Figures *

Divide and check:

	a	*b*	*c*	*d*
1.	256)8192	349)8379	265)9285	285)6856
2.	463)98619	537)169155	563)115978	639)194900
3.	365)87656	741)195736	506)435165	613)554932
4.	463)48625	289)29219	769)159189	864)263520
5.	386)47628	207)159197	425)146775	389)196839
6.	248)12574	327)240989	786)320688	305)263521
7.	787)47928	658)294900	105)48723	609)479295

8. Last year there were 10,950 pupils in all the schools of a city. There were 365 teachers in the city. That was an average of ___ pupils to a teacher. (Is your answer reasonable?)

9. Mr. Jones has a small truck which carries 975 lb. He wants to haul 2 tons of coal from the coal yards to his home. How many trips will he have to make? How many pounds would there be left for the last load, if he carried 975 lb. each trip except the last?

10. At $225 an acre how many acres of land can I buy for $6,000? How many dollars shall I have left over?

11. Our school buys pencils in boxes containing twelve dozen pencils. When 450 pencils are needed, how many boxes of pencils must be bought? (HINT. Twelve dozen pencils are ___ pencils.)

Division of United States Money

There are 19 boys in our club. We are going to build a radio set. The materials cost $23.18. If we share the cost equally, how much do you think each of us should pay?

```
      1 22
19)$23.18
   19
   ---
    41
    38
    --
     38
     38
     --
```

This is the way Billy divided to find out. He said, "According to my answer we each should pay $122." Teddy answered: "That's impossible. It's more than all the material cost. You forgot to write the dollar sign and the cents point in your answer."

After Billy wrote the dollar sign and the cents point, what was his answer? How much must each boy pay? Try never to make the mistake that Billy did. *Don't forget to write the dollar sign and the cents point in your answer whenever they are needed.*

1. A bill of $12.88 is to be divided equally among 23 persons. How much should each person pay?

2. $79.68 is to be divided equally among 24 persons. How much does each one get? Is your answer reasonable? How could you prove it is correct?

Divide and check: (Tell how many cents are left over. These worked examples show you how to do it.)

$\$\ 1.26\ r6¢$ $19\overline{)\$24.00}$ $\quad$ $\$\ .57\ r17¢$ $23\overline{)\$13.28}$ $\quad$ $\$\ .08\ r10¢$ $36\overline{)\$2.98}$

3. $33\overline{)\$17.49}$ $\quad$ $42\overline{)\$7.14}$ $\quad$ $22\overline{)\$4.65}$ $\quad$ $41\overline{)\$7.85}$

4. $41\overline{)\$9.02}$ $\quad$ $20\overline{)\$8.40}$ $\quad$ $51\overline{)\$115.30}$ $\quad$ $71\overline{)\$153.50}$

5. $52\overline{)\$78.00}$ $\quad$ $35\overline{)\$44.00}$ $\quad$ $36\overline{)\$72.36}$ $\quad$ $54\overline{)\$108.54}$

Problem Solving

1. Bob has \$2.10 to spend for books. The books he wants are 35¢ apiece. He wonders how many books he can buy. Do you know?

To find the number of books, he must see how many times 35¢ is contained in \$2.10. This is the same as finding how many times 35¢ is contained in 210¢ (\$2.10 = 210¢). We can find this number by doing this division: $35\overline{)210}$. How many books can he buy?

2. How many 35-cent books can you buy with \$4.90? Here is the division you must do to find out: $35\overline{)490}$.

3. How many 35-cent books can you buy with \$6.30? (How many 35's are there in 630?)

4. How many 45-cent books can you buy for \$7.50? Will you have any money left? How much?

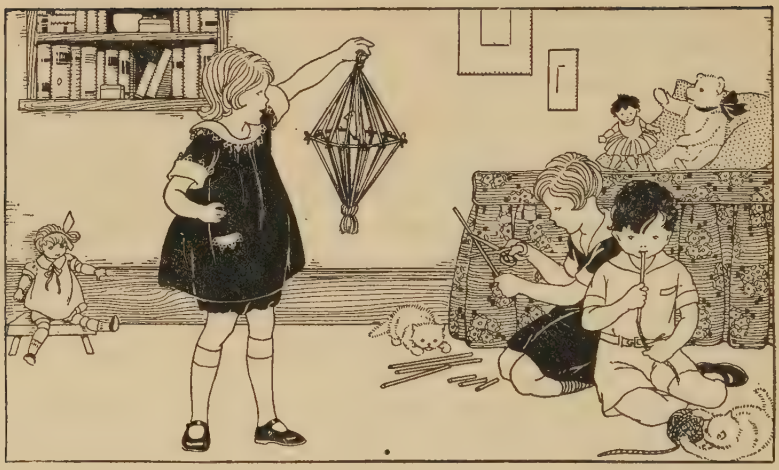
5. How many 75-cent books can you buy for \$9.00? How much money will be left?

6. I have \$2.25 with which to buy some flowers. Roses cost \$3.60 a dozen. How many of those can I get and how much money will I have left? (How much does each rose cost?)

7. We collected \$6.30 to buy dolls for some poor children last Christmas. We paid 45¢ apiece for them. Do you know how many we bought? Had we any money left?

8. Harry received \$2.00 for his birthday. He bought a 50-cent bow, and wants to buy 25-cent arrows with the rest of the money. How many arrows can he buy?

9. How many games at 32¢ each can you buy for \$4.50?



We are going to make bird cages out of drinking straws. This is the way to make them.

First cut 12 pieces of yarn. Each piece must be 8 inches longer than *twice* the length of a drinking straw. On each piece of yarn slip 2 straws. An easy way to get the yarn through the straws is to moisten an end of the yarn and slip it into one end of the straw. Then put the other end of the straw in your mouth, and suck the yarn through.

After you have 2 straws on each piece of yarn, tie the pieces of yarn together about 3 inches from one end. This forms the tassel at the bottom of the cage.

Next make the crossbars for the cage. Each bar is one third of a straw in length; 12 of these bars are needed.

Also cut 12 pieces of yarn, each piece being 6 inches longer than a crossbar. Draw a piece of yarn through each crossbar.

Put in the crossbars by tying each one firmly to the yarn where it comes out of the top of the straws that form the bottom of the cage.

Tie a toy bird on the end of a piece of yarn about 10 inches long. Lower the bird into the cage as far as you wish, and then tie together the piece of yarn on which it is hung and the 12 pieces of yarn that come out of the straws that form the top of the cage. Make a loop out of these pieces of yarn, and your cage is ready to be hung up.

Maybe your teacher will let you make bird cages. If so, figure the cost of the materials for your cages instead of answering the following questions.

1. How many straws are needed for each cage? (Don't forget the crossbars.) There are 30 children in our room; so how many straws are needed all together?

2. We can buy 10 straws for a cent; so the 840 straws will cost ___. (HINT. What will 20 straws cost? 40? 100? 800? 840?)

3. Three small skeins of yarn are needed for each cage. The yarn sells at 3 skeins for 10 cents. How much will the yarn cost for each cage? for all our cages?

4. We can buy the toy birds for our cages at 2 for a nickel. How much will the birds for all our cages cost?

5. How much will the material for the cages cost all together?

6. How much money should each child pay if we wish to share the cost of the cages equally?

Naming the Answer

Read each of these problems carefully, and then without working it tell the name of the answer. The first one is done for you.

1. At 25¢ each how many handkerchiefs can you buy for $1.30?

The name of the answer is *handkerchiefs*.

2. If a box containing 75 cards costs $1.50, how much does each card cost? The name of the answer is ___.

3. At 45¢ each how many toys can you buy for $2.10?

4. If 25 people share the cost of a 30-dollar table, how much should each one pay?

5. At 30¢ apiece how many apple pies can you buy for $1.00?

6. If one bottle of cider costs 25¢, how many bottles can you buy with 80¢?

7. If you pay $3.00 for a dozen roses, how much does each rose cost?

8. If a 25-pound bag of sugar costs $1.75, how much does each pound cost?

9. At 98¢ each how many rose bushes can you buy with $5.00?

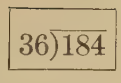
10. At 42¢ each how many towels can you buy with $2.00?

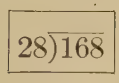
11. If a book of 50 car tickets costs $3.00, how much does each ticket cost?

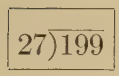
12. Billy got a strip of 15 merry-go-round tickets for $.60. How much did each ticket cost?

13. Tell the name of the answer in each problem on page 378.

Finding Correct Quotient Figures

1.  What is the quotient figure in this example? Why didn't you use 6?

2.  Is 8 the quotient figure in this example? Why? Is 7 the quotient figure? Why? Is 6 the quotient figure? Why?

3.  Is 9 the quotient figure in this example? Try 8. Is that correct? Try 7. Is that correct?

Here is a rule that will be useful in finding quotient figures: *Try the quotient figure which seems right. If it is too large, try the next smaller number. If that is too large, keep going down, one by one, until you find the right one.*

Tell the correct quotient figures in these examples. Then work each example.

	a	*b*	*c*	*d*
4.	53)468	28)140	19)58	26)185
5.	77)645	17)69	48)349	57)326
6.	27)118	96)725	28)149	54)487
7.	34)268	18)56	86)629	28)198
8.	59)418	68)523	78)613	29)187
9.	37)175	28)165	27)172	49)306
10.	79)603	89)717	19)67	29)105
11.	49)309	78)606	59)413	28)107

Finding Correct Quotient Figures

Divide and check:

	a	*b*	*c*	*d*
1.	$19\overline{)586}$	$28\overline{)1463}$	$26\overline{)1857}$	$28\overline{)1598}$
2.	$25\overline{)142}$	$25\overline{)1423}$	$59\overline{)3585}$	$16\overline{)843}$
3.	$16\overline{)560}$	$57\overline{)3875}$	$49\overline{)2814}$	$29\overline{)1875}$
4.	$16\overline{)645}$	$48\overline{)3607}$	$15\overline{)7734}$	$27\overline{)1429}$
5.	$36\overline{)564}$	$37\overline{)2773}$	$39\overline{)1446}$	$36\overline{)2051}$

6. The bicycle which Marie wants costs \$23.40. How much must she save every week for a year, so that she can buy the bicycle at this time next year?

7. A club of 26 girls gave a dinner. The cost of the dinner was \$14.75. They planned to share the expense equally. How much did each one have to pay? Each of ___ girls offered to pay one cent extra.

8. At 25¢ each how many Christmas presents can I buy for \$1.40? Will there be any money left over?

9. At 15¢ a dozen how many dozen rolls can be bought for 65¢? Will there be any money left over?

10. Kathleen has \$3.00. She wants to knit a sweater that requires $5\frac{1}{2}$ balls of yarn. She can buy one kind of yarn for 49¢ a ball and another kind for 59¢ a ball. Has she enough money to buy the better yarn? the poorer yarn? (Can she buy a part of a ball?)

11. If Kathleen buys enough yarn for her sweater, how much change will she get from her \$3.00?

A Page about Numbers

1. Count by thousands from 1,000 to 24,000.

2. Count by hundreds from 2300 to 4800.

3. Count by thousands from 6,782 to 37,782.

4. Tell the numbers that belong in these blank spaces:

a. 1,789; 1,889; 1,989; 2,089; ___; ___; 2,389.

b. 17,640; 18,640; 19,640; ___; ___; ___; 23,640.

5. Read these numbers:

30,300	440,400	50,550	1,606,666
303,003	4,400,440	5,055,555	60,006
330,333	4,400,004	5,505	6,600
303,030	44,040	5,505,505	600,060

6. Give the next three numbers after 999,999; 799,999; 607,099; 530,009; 560,999; 879,999.

7. Write in figures:

a. Five hundred six thousand, five.

b. Nine hundred ninety thousand, five hundred five.

c. One million, five hundred thousand.

d. One million, five hundred.

e. Twelve million, three thousand, seventy-five.

8. Read these Roman numerals:

a. XV; XVII; XXX; XXXVIII; XIX.

b. L; C; XL; LXIX; XLIV.

c. XC; XCIX; XCIV; LXXXIX.

9. Count by halves from $3\frac{1}{2}$ to 10.

10. Count by fourths from $3\frac{1}{2}$ to 6.

11. Count by eighths from $3\frac{1}{2}$ to 5.

Problems about Change*

1. In the last two weeks Susan's mother used 18 qt. of milk. The milk cost 13¢ a quart. When she paid her bill, how much change did she get from a 10-dollar bill?

2. Roy took three packages to the express office to send them away. It cost 75¢ to send the first, $1.14 to send the second, and $1.29 to send the third. The clerk gave him $1.72 in change from a 5-dollar bill. Was that correct?

3. Mary bought $2\frac{1}{2}$ lb. of beefsteak for 42¢ a pound. She paid for it with a 2-dollar bill and got ___ change.

4. For our school party we bought $2\frac{1}{2}$ dozen lemons at 30¢ a dozen and a box of sugar for 36¢. We paid for them with a 2-dollar bill. How much change did we get?

5. Later we bought $2\frac{1}{2}$ lb. of cookies at 22¢ a pound with the change we had. Did we have any money left then? If so, how much?

6. How much change will you get from $1.50 if you buy $3\frac{1}{2}$ lb. of meat at 36¢ a pound?

7. After paying for 6 lb. of nuts at 32¢ a pound, will you have enough money left from $3.00 to buy a pound and a half of 60-cent candy?

8. If you pay for $4\frac{1}{2}$ yd. of silk costing $1.50 a yard with a 10-dollar bill, how much change should you get?

9. My mother gave me a dollar and sent me for a dozen and a half of fresh eggs. Eggs at one store were 48¢ a dozen. At another store they were 52¢ a dozen. How much more change will I get if I buy at the first store than if I buy at the second?

Troublesome Quotients

39)3360

(1) In doing this example Fred thought, "3 in 33, 11 times." He wrote 11 in the quotient, but found it wouldn't do. Why?

(2) Next he tried 10 in the quotient. That wouldn't do either. Why? Would 9 do? Would 8?

Fred would have saved himself a lot of work if he had known that 9 is the largest figure that is ever used in the quotient. Did you know that?

When you are working examples like the one above, start with 9 as the quotient figure, and if that is too large come down 1 at a time until you get the right figure.

Are these quotient figures correct, and is each one written in the right place?

	a	*b*	*c*	*d*	*e*
	9	9	8	9	9
1.	25)246	35)3364	48)4456	58)5526	29)2600
	9	8	8	9	9
2.	36)3342	18)1563	17)1432	15)1456	16)1502

Give the correct first quotient figure in each of these examples without using a pencil.

3.	17)13685	16)11280	18)58350	26)82688	38)13324
4.	35)32415	24)19920	25)21000	26)16510	39)33735
5.	49)42097	16)15175	18)15750	15)14040	29)24500
6.	39)34478	49)37060	29)25375	28)25396	16)14528
7.	18)14572	19)14915	19)15344	26)52208	35)28480

Go back and do Examples 3 to 7.

At the County Fair *

1. My father and mother took my two sisters and me to the county fair. How much did it cost for us all to get on the fair grounds? My father paid for the tickets with a 10-dollar bill. How much change did he get?

2. At one booth they gave away a 25-cent prize to everybody who could throw three balls into a basket. (To throw three balls cost 10¢.) I saw them give away 14 prizes. I wonder how much all those prizes cost. Do you know?

3. We saw the prize cow, named Tilly Alcartra, that had given 15,271 qt. of milk in a year. Since milk sells for 12¢ a quart, how much was the milk for the year worth?

4. The owner got an average of how many quarts of milk a week from the prize cow?

5. About what was the average number of quarts of milk a day that he got from the prize cow?

6. We also saw some prize horses. The owner of one wanted $940.00 for it. A man said, "I'll give you $765 for the horse." That was ___ less than the owner wanted.

7. The prize hen, Lady Eglantine, had laid 314 eggs during the year. This was the world's record. At 40¢ a dozen how much would 314 eggs cost?

Learning to Use Mixed Numbers

1. Mrs. Cane bought a 2-pound box of cocoa and a half-pound box. All together she bought 2 lb. plus $\frac{1}{2}$ lb., or ___ lb. of cocoa.

$$2 + \frac{1}{2} = 2\frac{1}{2}$$

2. Mrs. Paul had $\frac{1}{2}$ doz. eggs. She sent Mary to the store for 3 doz. more. Now she has ___ doz. eggs.

$$\frac{1}{2} + 3 = 3\frac{1}{2}$$

3. My mother had 2 doz. cookies, but she baked $2\frac{1}{4}$ doz. more. Then she had ___ doz. cookies.

$$2 + 2\frac{1}{4} = 4\frac{1}{4}$$

4. She gave a dozen cookies to the next-door neighbor. She had left ___ doz. cookies.

$$4\frac{1}{4} - 1 = 3\frac{1}{4}$$

5. I asked for the $\frac{1}{4}$ doz. to take to school. She gave them to me and had only ___ doz. left.

$$3\frac{1}{4} - \frac{1}{4} = 3$$

6. Mrs. Burns bought two pieces of cloth at a sale. One piece contained $2\frac{1}{4}$ yd., and the other contained $1\frac{1}{4}$ yd. All together she bought ___ yd.

$$2\frac{1}{4} + 1\frac{1}{4} = 3\frac{1}{2}$$

7. At the same sale Mrs. Brown bought a piece containing $2\frac{1}{4}$ yd., another containing 1 yd., and a third containing $1\frac{1}{2}$ yd. She bought ___ yd. in all.

$$2\frac{1}{4} + 1 + 1\frac{1}{2} = 4\frac{3}{4}$$

8. Find these sums:

a.	*b.*	*c.*	*d.*	*e.*	*f.*
$2\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{8}$	4	$5\frac{1}{4}$	$3\frac{1}{6}$
$1\frac{1}{4}$	2	$2\frac{1}{8}$	$1\frac{1}{2}$	$3\frac{1}{2}$	3

Complete these statements:

1. $\frac{5}{6}$ of 18 = ___.
2. $\frac{7}{8}$ of 32 = ___.
3. $\frac{11}{12}$ of 36 = ___.
4. $\frac{5}{9}$ of 27 = ___.
5. $\frac{6}{7}$ of 49 = ___.
6. $\frac{5}{8}$ of 48 = ___.
7. $\frac{3}{4}$ of 36 = ___.
8. $\frac{3}{4}$ of 32 = ___.
9. $\frac{5}{12}$ of 48 = ___.
10. $\frac{5}{9}$ of 54 = ___.
11. $\frac{3}{4}$ of 36 in. = ___.
12. $\frac{5}{8}$ of 48 bu. = ___.
13. $\frac{5}{6}$ of 24 yd. = ___.
14. $\frac{7}{9}$ of \$45 = ___.
15. $\frac{11}{12}$ of 48 in. = ___.
16. $\frac{3}{5}$ of 60¢ = ___.
17. $\frac{3}{8}$ of 64 = ___.
18. $\frac{7}{10}$ of 70 gal. = ___.

Give the missing terms:

19. $1 = \frac{?}{2}$ $1 = \frac{?}{4}$ $1 = \frac{?}{8}$ $\frac{1}{2} = \frac{?}{4}$
20. $\frac{1}{4} = \frac{?}{8}$ $\frac{3}{4} = \frac{?}{8}$ $\frac{1}{2} = \frac{?}{8}$ $\frac{2}{4} = \frac{?}{8}$
21. Bill weighs $81\frac{3}{4}$ lb. Tom weighs $76\frac{3}{8}$ lb. Bill weighs ___ lb. more than Tom.
22. Fred weighs $75\frac{1}{4}$ lb. He weighs ___ lb. less than Tom.

Give these answers as quickly as you can:

23.	$\frac{1}{2} + \frac{1}{2} =$	$\frac{1}{8} + \frac{3}{8} =$	$\frac{5}{8} - \frac{1}{2} =$	$\frac{5}{8} + \frac{1}{4} =$
24.	$\frac{1}{4} + \frac{1}{4} =$	$\frac{8}{8} - \frac{5}{8} =$	$\frac{5}{8} - \frac{1}{4} =$	$\frac{7}{8} - \frac{3}{8} =$
25.	$\frac{1}{2} + \frac{1}{4} =$	$\frac{6}{8} - \frac{1}{4} =$	$\frac{3}{4} + \frac{1}{2} =$	$\frac{5}{8} + \frac{3}{4} =$
26.	$\frac{3}{4} + \frac{1}{4} =$	$\frac{4}{8} - \frac{1}{4} =$	$\frac{7}{8} - \frac{1}{2} =$	$\frac{5}{8} + \frac{1}{8} =$

Add:

27.	28.	29.	30.	31.	32.	33.	34.
$\frac{1}{4}$	$\frac{1}{8}$	$1\frac{1}{8}$	$5\frac{1}{3}$	$2\frac{1}{2}$	$3\frac{5}{8}$	$2\frac{1}{8}$	$3\frac{1}{5}$
$\frac{1}{4}$	$\frac{5}{8}$	$2\frac{1}{8}$	$3\frac{1}{3}$	$3\frac{1}{4}$	4	$6\frac{7}{8}$	$2\frac{3}{5}$
$\frac{3}{4}$	$\frac{3}{8}$	$4\frac{1}{8}$	4	5	6	3	4

What You Have Learned in Chapter VII

Divide and check:

1. $325\overline{)69883}$
2. $506\overline{)435176}$
3. $639\overline{)194900}$
4. $390\overline{)344790}$
5. $49\overline{)\$100.45}$
6. $24\overline{)\$180.00}$
7. $51\overline{)\$115.26}$
8. $29\overline{)\$253.78}$
9. $16\overline{)14528}$
10. $18\overline{)14573}$
11. $26\overline{)52207}$
12. $39\overline{)33737}$

13. Our grocery bill for May was \$45.57. That means our groceries cost us an average of ___ a day.

14. My mother is buying a box containing 2 doz. cans of corn for \$4.80. How much does each can cost her? One can of that kind of corn costs 25¢ at the grocery store. How much is my mother saving by buying the 2 doz. cans at one time?

15. At 49¢ each how many articles can you buy for \$10.00? How much money will you have left over?

16. One store is selling 25-pound bags of sugar for \$1.55. Another store is selling 15-pound bags of the same kind of sugar for \$1.05. At which store is the price of one pound of the sugar lower?

17. How many dozens of bananas at 23¢ a dozen can you buy for \$5.00? How much change will you have left?

18. The canned corn we usually buy costs 18¢ a can. Tomorrow the store is having a sale, selling 2 dozen cans of that corn for \$4.15. How much money can my mother save if she buys 2 dozen cans of corn at that sale?

19. If you pay \$4.80 for 2 dozen cans of peas, how much do the peas cost you a can?

Problem Study

Do the problems on this page. If you get Problem 1 wrong, go to page 383 and do Problem 1 (*a*), (*b*), (*c*), (*d*), and (*e*). Then come back and see if you can do Problem 1 on this page correctly. If you fail Problem 2 on this page, practice Problem 2 (*a*) and (*b*) on page 383. Then try Problem 2 on this page again, and so on.

1. Roy has saved \$5.00 with which to buy Christmas gifts. He wants to buy his mother a flower vase for \$1.25, his father a tie for \$1.29, and his sister a little purse for \$1.19. He wonders whether he will have enough money left to buy a box of chocolates that cost \$1.25. Will he?

2. Ted has raised 32 chickens. He wants to sell them for 65¢ apiece. If he sells them all at that price, how much money will he get for them?

3. The ice cream and cake for a school party cost \$5.15. The 32 children in the room shared the cost equally. Each child paid ___ cents. There was ___¢ extra that the teacher paid.

4. Mary is going to make doll clothes this afternoon. She has 50¢ to buy material. She wonders whether she has enough money to buy $\frac{3}{4}$ of a yard of pink goods at 48¢ a yard and $\frac{1}{2}$ yard of ribbon at 20¢ a yard. Has she?

5. Before Jim went up to see his two cousins, his father gave him a dollar and told him to treat himself and his cousins. Jim would like to take them to a "movie" and then get them a soda after the show. The tickets for the movie cost 20¢ each and sodas cost 15¢ each. Do you know whether he has enough money to do that?

Problem Helps

Pupils who do all the problems on page 382 correctly the first time they try them need not do these problems.

1. (*a*) Alice wants a 10-cent game and a 12-cent comb. Both will cost her ___ cents. (*b*) Alice has 25¢. If she buys the game and comb, how much will she have left? (*c*) Peter has 50¢. If he spends 25¢ to go to the "movies" and buys a 20-cent magazine, will he have enough money left to buy a 10-cent puzzle? (*d*) When you know the cost of each of several articles, to find the cost of all you should ___. (*e*) When you know how much money you have and how much you are going to spend, you can find how much you will have left by ___.

2. (*a*) If Marie sells 9 Easter eggs for 5¢ each, how much will she receive for them all? (*b*) If you know how many articles you are selling and the price of each, to find how much you will receive for all you should ___.

3. (*a*) Five children bought a 25-cent ball. They shared the cost equally. Each child's share was ___ ¢. (*b*) Five children bought a 29-cent ball. They shared the cost equally. Each child paid ___ cents. Billy's mother paid the extra ___ cents. (*c*) When people share equally the cost of an article, to find each one's share you should ___.

4. (*a*) $\frac{3}{4}$ yard of ribbon at 16¢ a yard will cost ___ ¢. (*b*) $\frac{1}{2}$ yard of lace at 8¢ a yard will cost ___ ¢. (*c*) The ribbon and lace in (*a*) and (*b*) will both cost ___ ¢.

5. (*a*) Five movie tickets at 10¢ each will cost ___ cents. (*b*) Three chocolate bars at 5¢ each will cost ___ cents. (*c*) The movie tickets and the chocolate bars in (*a*) and (*b*) will both cost ___ cents.

Oral Review *

1. In the examples in the box below, name:

a. a dividend	*e.* a multiplier	*i.* a divisor
b. a product	*f.* a quotient	*j.* a sum
c. a difference	*g.* an addend	*k.* a multiplicand
d. a subtrahend	*h.* a minuend	*l.* a remainder

8)6473	375	367	345
809 r1	× 5	25	− 128
	1,875	804	217
		1,196	

2. 1 year = ___ days.

3. 1 year = ___ months.

4. 1 year = ___ weeks.

5. 1 ton = ___ pounds.

6. April has ___ days.

7. 1 day = ___ hours.

8. 9 : 45 is ___ min. of ___.

9. 1 minute = ___ seconds.

10. A.M. means ___.

11. 1 ft. = ___ in.

12. 1 yd. = ___ ft.

13. November has ___ days.

14. December has ___ days.

15. 8 : 32 is ___ min. of ___.

16. The average of 14, 15, and 16 is ___.

17. The average of 7, 7, 8, and 8 is ___.

18. XLVII is the Roman numeral for ___.

19. Numbers like $\frac{3}{4}$ and $\frac{7}{8}$ are called ___.

20. If you know the cost of a box containing a half-dozen cakes, to find the cost of one cake you must · · ·

21. If you had 500 sheets of paper in a pad, and know how many sheets are left, to find how many you have used you must · · ·

Some Written Reviews

Be sure to check every example.

AN ADDITION REVIEW

1.	2.	3.	4.
546	$346.80	$675.84	$675.83
320	90.07	3.27	2.97
754	6.99	87.63	27.63
387	308.87	5.94	8.54
639	75.99	400.05	307.89
28	8.75	89.96	98.76

A SUBTRACTION REVIEW

1.	2.	3.	4.
5468	$3000	$297.65	$354.86
2793	2875	38.49	207.97

A MULTIPLICATION REVIEW

1.	2.	3.	4.	5.	6.
3475	354	389	504	864	378
9	276	76	375	903	400

A DIVISION REVIEW

1. $3\overline{)76446}$	5. $5\overline{)25458}$	9. $8\overline{)36537}$
2. $5\overline{)\$76.35}$	6. $22\overline{)682}$	10. $41\overline{)617}$
3. $39\overline{)1014}$	7. $29\overline{)1044}$	11. $27\overline{)5481}$
4. $516\overline{)108495}$	8. $47\overline{)6580}$	12. $59\overline{)2541}$

A FRACTION REVIEW

1. Which is larger, $\frac{7}{4}$ or $\frac{4}{7}$?
2. Is $3 \div 4$ written $\frac{3}{4}$ or $\frac{4}{3}$?
3. $\frac{1}{2} = \frac{?}{4} = \frac{?}{8}$.
4. $\frac{1}{8} + \frac{1}{8} + \frac{3}{8} = \frac{?}{8}$.

5.	6.	7.	8.	9.
$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{4}$	$1\frac{1}{2}$	$4\frac{1}{8}$
$\frac{3}{4}$	$\frac{5}{8}$	$\frac{1}{4}$	$2\frac{1}{2}$	$5\frac{4}{8}$
$\frac{1}{4}$	$\frac{2}{8}$	$\frac{1}{2}$	3	$3\frac{2}{8}$

Tell the missing words and numbers: (Don't use a pencil for figuring.)

1. If you know a man's yearly salary, to find how much he gets each month you should ___.

2. If you know how much you weigh and how much your brother weighs, to find the difference between your weights you should ___.

3. If you know how much material to buy to make one towel, to find how much to buy to make a dozen towels you should ___.

4. If you know the cost of each of the Christmas gifts you have bought, to find how much you have spent for all of them you should ___.

5. Nineteen dozen rolls at 21¢ a dozen will cost about ___.

6. If a man drives 29 miles an hour, it will take him about ___ hours to go 120 miles.

7. Bob earned $9 this month. His big brother Bill earned $63. Bill earned ___ times as much as Bob.

8. If butter sells for 56¢ a pound, a quarter of a pound will cost ___¢.

9. For 60 pennies I can get ___ dimes, or ___ nickels or ___ quarters and ___ dime.

10. For 200 pennies I can get ___ dollars or ___ dimes.

11. The cost of a half-dozen fancy plates at 75¢ each is ___.

12. If you have a half dollar and want to buy a tooth-brush for 35¢ and a tube of tooth paste for 30¢, you need ___ cents more.

What Every Fourth-Grade Child Should Know

Tell the missing parts in these examples:

	a	*b*	*c*
1.	$\frac{2}{3}$ of 24 = ___.	1 da. = ___ hr.	L (*Roman*) = ___.
2.	6 × 32 = ___.	16 qt. = ___ pk.	61 ÷ 3 = ___.
3.	$\frac{1}{8}$ of 57 = ___.	$\frac{1}{6}$ of 45 = ___.	50¢ + 25¢ = ___¢.
4.	C = ___.	5 × 76 = ___.	80 ÷ 4 = ___.
5.	___ ÷ 9 = 9.	41 − 36 = ___.	9 × ___ = 54.
6.	4 × 29 = ___.	$\frac{1}{2}$ bu. = ___ pk.	$\frac{1}{5}$ of 65 = ___.
7.	66 − 63 = ___.	$\frac{1}{2}$ of 17 = ___.	45 + 27 = ___.
8.	$\frac{1}{2}$ ft. = ___ in.	1 yr. = ___ da.	33 − 27 = ___.
9.	LX = ___.	51 − 49 = ___.	4 × 98 = ___.
10.	9 yd. = ___ ft.	$\frac{1}{4}$ lb. = ___ oz.	$\frac{3}{8}$ lb. = ___ oz.
11.	$\frac{2}{4} = \frac{?}{2}$.	29 + 35 = ___.	31 − 28 = ___.
12.	XC = ___.	LXVI = ___.	54 − 48 = ___.
13.	67 ÷ 7 = ___.	$1\frac{1}{2}$ lb. = ___ oz.	59 + 37 = ___.
14.	$\frac{1}{2}$ mi. = ___ ft.	7 × 43 = ___.	$\frac{3}{4}$ yd. = ___ in.
15.	$\frac{4}{8} = \frac{?}{2}$.	$\frac{1}{2}$ yr. = ___ mo.	8 qt. = ___ gal.
16.	$\frac{1}{2} + \frac{1}{4}$ = ___.	8 oz. = ___ lb.	37 + 28 = ___.
17.	$\frac{3}{8} + \frac{4}{8}$ = ___.	$\frac{1}{2}$ ton = ___ lb.	12 qt. = ___ pt.
18.	$\frac{7}{8} + \frac{5}{8}$ = ___.	47 ÷ 5 = ___.	12 qt. = ___ gal.

19. $\frac{1}{2}$ min. = ___ sec.
20. 9 : 00 A.M. means · · ·
21. 1 hr. = ___ min.
22. 2 : 00 P.M. means · · ·
23. Read: 3,003,003
24. Read: 9,476,204
25. $2.00 = ___ dimes.
26. $1.50 = ___ quarters.
27. 3 wk. = ___ da.
28. 1 yr. = ___ wk.
29. 1 leap yr. = ___ da.
30. 100 × 100 = ___.

What Every Fourth-Grade Child Should Know

Which of the 27 statements on this page are true? (Do not use a pencil.)

1. 36 ft. = 12 yd.

2. $\frac{7}{8} - \frac{2}{8} = \frac{5}{8}$

3. $\frac{4}{5}$ of 20 = 16

4. $64 \div 3 = 2\frac{2}{3}$

5. $\frac{2}{3}$ of 12 = 6

6. $\frac{4}{5} = 4 \div 5$

7. $5 \times 16¢ = 80$

8. $\frac{7}{8} - \frac{1}{4} = \frac{5}{8}$

9. $\frac{5}{9}$ of 45 = 81

10. $\frac{4}{8} = \frac{2}{4} = \frac{1}{2}$

11. $20 \times 75 = 150$

12. $\frac{1}{4}$ is larger than $\frac{1}{3}$

13. $\frac{5}{6} = 6 \div 5$

14. $\frac{1}{5}$ of \$1.00 = 20

15. $\frac{1}{9}$ of 7209 = 801

16. 8 : 45 A.M. is a quarter of nine in the evening.

17. $1\frac{1}{4}$ yd. of lace at 12¢ a yard will cost 16¢.

18. If Grace gives 2¢ and Rita gives 3¢ toward buying a 5-cent box of crayons containing 5 crayons, Grace should take 2 crayons and Rita should take 3.

19. If 4 cookies are shared by 5 boys, each boy gets $\frac{5}{4}$ of a cooky.

20. If 3 bananas are shared by 2 girls, each girl gets more than one banana.

21. The average of 3, 4, 5, and 6 is $4\frac{1}{2}$.

22. February, 1951, will have 29 days.

23. September, April, June, and November are the months that have 30 days.

24. Three million, three hundred three is written 3,300,003.

25. The area of a rectangle 9 ft. wide and 7 ft. long is 63 ft.

26. The area of a rectangle 6 in. wide and 9 in. long is 54 sq. in.

27. The length and width of a rectangle are its dimensions.

What Every Fourth-Grade Child Should Know

Find in Column II the answer to each example in Column I.

	Column I	Column II
1.	2 ft. = ___ in.	*a.* 54
2.	$1\frac{1}{2}$ yd. = ___ in.	*b.* Yes.
3.	$\frac{3}{8} + \frac{1}{4} = ?$	*c.* 7
4.	5×38 is ___ than 175.	*d.* less
5.	Does $\frac{5}{10}$ of 20 equal $\frac{1}{2}$ of 20?	*e.* No.
6.	$63 - 56 = ?$	*f.* 40
7.	1 ft. 6 in. = ___ ft.	*g.* $1\frac{1}{2}$
8.	Does $\frac{3}{4}$ of 12 equal $\frac{2}{3}$ of 12?	*h.* 24
9.	$212 \div 7 =$ ___.	*i.* $30\frac{2}{7}$
10.	4×32 is ___ than 133.	*j.* $3.00
11.	8 oz. of 80-cent candy costs ___ ¢.	*k.* greater
12.	15 yd. of 21-cent muslin will cost about ___.	*l.* $\frac{5}{8}$

Give the correct quotient figure in each of these examples and tell where it should be placed:

	a	*b*	*c*	*d*	*e*
1.	$23\overline{)46}$	$20\overline{)80}$	$24\overline{)32}$	$35\overline{)267}$	$45\overline{)386}$
2.	$54\overline{)459}$	$69\overline{)524}$	$47\overline{)427}$	$79\overline{)531}$	$58\overline{)516}$
3.	$26\overline{)223}$	$86\overline{)752}$	$94\overline{)831}$	$28\overline{)256}$	$95\overline{)653}$
4.	$89\overline{)674}$	$16\overline{)134}$	$25\overline{)200}$	$69\overline{)534}$	$27\overline{)217}$
5.	$24\overline{)138}$	$37\overline{)334}$	$75\overline{)543}$	$15\overline{)136}$	$68\overline{)357}$

For Superior Fourth-Grade Pupils

Subtract:

1. 5000 − 2876

2. 29874 − 26935

3. 80135 − 11978

4. 96127 − 30569

Add:

5. \$569.82 + 304.56 + 87.63 + 9.98 + 297.84 + 67.95

6. 49 + 68 + 7 + 35 + 6 + 48 + 9

7. 78 + 89 + 76 + 89 + 5 + 66 + 77

8. 96 + 84 + 75 + 29 + 38 + 79 + 67

Multiply:

9. 9658 × 5

10. 907 × 28

11. 609 × 708

12. 736 × 840

13. \$54.28 × 6

Divide:

	a	*b*	*c*	*d*
14.	$9\overline{)6354}$	$8\overline{)6483}$	$51\overline{)1071}$	$61\overline{)45994}$
15.	$81\overline{)5427}$	$95\overline{)7885}$	$74\overline{)6885}$	$81\overline{)27947}$
16.	$71\overline{)2417}$	$84\overline{)3528}$	$89\overline{)1119}$	$72\overline{)14619}$
17.	$21\overline{)1448}$	$54\overline{)2352}$	$49\overline{)4276}$	$63\overline{)63257}$
18.	$16\overline{)1143}$	$29\overline{)2346}$	$37\overline{)3256}$	$27\overline{)54081}$

19. Find the area of a rectangle whose dimensions are 27 ft. and 29 ft.

20. How much change will Lucy get from a 5-dollar bill if she buys 3 yards of linen at \$1.25 a yard and $\frac{3}{4}$ of a yard of trimming at 60¢ a yard?

21. If you want to save \$25.00 in a year, how much ought you to save each week?

22. At 29¢ each how many linen handkerchiefs can you buy with \$2.00, and how much money will you have left?

Progress Test No. 7

Write just the answers to these examples. Number each answer. (Record your score.)

1. $25\overline{)6752}$

2. $33\overline{)\$17.49}$

3. $17\overline{)13690}$

4.
$$\begin{array}{r} 4785 \\ 2963 \\ 405 \\ 8765 \\ 987 \\ 9564 \\ \underline{389} \end{array}$$

5.
$$\begin{array}{r} 50{,}000 \\ -\ 6{,}495 \end{array}$$

6.
$$\begin{array}{r} \$275.83 \\ -\ 16.97 \end{array}$$

7.
$$\begin{array}{r} 564 \\ \times\ 209 \end{array}$$

8.
$$\begin{array}{r} 5876 \\ \times\ 28 \end{array}$$

9. Tony, the fruit dealer, bought 2 dozen watermelons for \$6.00, and sold them at 34¢ each. How much more did he get for the watermelons than he paid for them?

10. At \$1.30 a bushel how many whole bushels of potatoes can be bought for \$15.00?

11. Find the total cost of 3 pounds of meat at 39¢ a pound, $2\frac{1}{2}$ dozen eggs at 60¢ a dozen, 2 quarts of milk at 16¢ a quart, and $\frac{3}{4}$ pound of cheese at 36¢ a pound.

Standards: X, 10. Y, 8. Z, 6.

Finding Out What You Know and What You Don't Know

TEST I. ADDITION

1.
$$\begin{array}{r} \$579.83 \\ 296.75 \\ 854.00 \\ 29.76 \\ 983.59 \\ 7.69 \\ \hline \end{array}$$

2. $\frac{1}{4} + \frac{1}{2} = \frac{?}{?}$

3. Find the sum of \$1.50, \$2.65, \$3.24, \$1.98, and \$4.67.

4.
$$\begin{array}{r} 56 \\ 48 \\ 9 \\ 7 \\ 63 \\ 79 \\ 85 \\ \hline \end{array}$$

TEST II. SUBTRACTION

1.
$$\begin{array}{r} 900 \\ 275 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 45798 \\ 20054 \\ \hline \end{array}$$

3. Find the difference between \$4,000.00 and \$785.59.

4. From \$800.00 take \$263.79.

5. $\frac{5}{8} - \frac{3}{8} = \frac{?}{8}$

TEST III. MULTIPLICATION

1.
$$\begin{array}{r} 5987 \\ 6 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 75 \\ 3000 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 506 \\ 832 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 579 \\ 807 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 24 \\ 3\frac{1}{2} \\ \hline \end{array}$$

6. Would 12 articles at \$1.25 each cost the same amount as 125 articles at 12¢ each?

TEST IV. DIVISION

1. $41\overline{)578}$ **2.** $52\overline{)1668}$ **3.** $42\overline{)3499}$ **4.** $62\overline{)2746}$

5. $88\overline{)2224}$ **6.** $47\overline{)4379}$ **7.** $24\overline{)10428}$ **8.** $37\overline{)7511}$

9. $35\overline{)70070}$ **10.** $24\overline{)10087}$ **11.** $563\overline{)115979}$

12. $41\overline{)\$7.85}$ **13.** $27\overline{)1427}$ **14.** $24\overline{)29920}$

TEST V. FRACTIONS

1. $\frac{1}{4} = \frac{?}{8}$ **2.** $\frac{1}{4} + \frac{1}{2} = \frac{?}{4}$ **3.** $\frac{1}{2}$ of $\frac{1}{4} = \frac{1}{?}$

4. $\frac{2}{4} = \frac{?}{2}$ **5.** $\frac{4}{6} = \frac{?}{?}$ **6.** $\frac{1}{2} + \frac{1}{8} = \frac{?}{8}$

7. $\frac{4}{8} = \frac{?}{2}$ **8.** $\frac{1}{2}$ of $\frac{1}{2} = \frac{?}{?}$ **9.** $\frac{5}{10}$ of 20 = ?

1. How many square feet are there in a rectangle 1 ft. wide and 2 ft. long?

2. ___ ft. = 1 yd.

3. $\frac{3}{4}$ yd. = ___ in.

4. $\frac{1}{4}$ ton = ___ lb.

5. 4 yd. = ___ ft.

6. $\frac{7}{8}$ lb. = ___ oz.

7. $\frac{1}{2}$ qt. = ___ pt.

This table tells you where to find the practice you need if you made any mistakes in these tests.

The Practice You Need

TEST I	TEST II	TEST III	TEST IV	TEST V	TEST VI
1. p. 349, Tests I and II	**1.** p. 294, Ex. 1	**1.** p. 223, Exs. 2–6	**1.** p. 315	**1.** p. 345	**1.** p. 303, Exs. 9–12
2. p. 347	**2.** p. 294, Ex. 5	**2.** p. 268	**2.** p. 317	**2.** p. 347	**2.** p. 227
3. p. 238, Exs. 13–16	**3–4.** p. 293	**3.** p. 292	**3.** p. 322	**3.** p. 345	**3.** p. 227
4. p. 214–F	**5.** p. 343	**4.** p. 341	**4.** p. 325	**4.** p. 346	**4.** p. 227
		5. p. 342	**5.** p. 328	**5.** p. 346	**5.** p. 227
		6. p. 224	**6.** p. 377	**6.** p. 347	**6.** p. 227
			7. p. 333	**7.** p. 346	**7.** p. 227
			8. p. 353	**8.** p. 345	
			9. p. 354	**9.** p. 274	
			10. p. 356		
			11. p. 367		
			12. p. 368		
			13. p. 373		
			14. p. 377		

Just for Fun

Bill: "Think of any number under 10 but don't tell me what it is. Multiply your number by 6. Add 12. Take half of that. Divide by 3. Subtract the number you thought of. Your answer is 2."

Jack: "That's right, but how did you know?"

Bill: "Well, you see, I'm a mind reader!"

Try it on your friends.

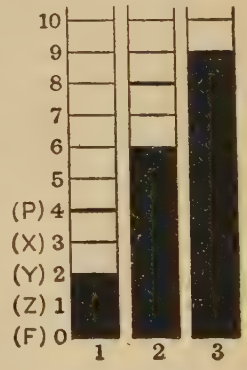
Progress Test Record

Keep a record of your work in the Progress Tests. Make your record in the Progress Chart on the next page or on one like it which you may draw.

Suppose that in Test 1 you made on first trial a score of 20, which means that you reached the Y standard. In that case you would write 20 in the "Score" column and Y in the "Standard" column opposite Test 1, Trial 1, as shown. On your next trial enter the score and standard reached opposite Trial 2, and so on.

Test	Trial	Score	Standard
1	1	20	Y
	2	23	X
	3	24	P

If your score is below the Z standard, write F (for Failed) in the "Standard" column. If you get a perfect score, write P (for Perfect) in the "Standard" column. Whenever you make a perfect score, you need not try the test again. But if you do not make a perfect score, you may take the test again until you have had three trials.



When you have had three trials (or have made a perfect score), show your progress by drawing a bar like those shown at the right.

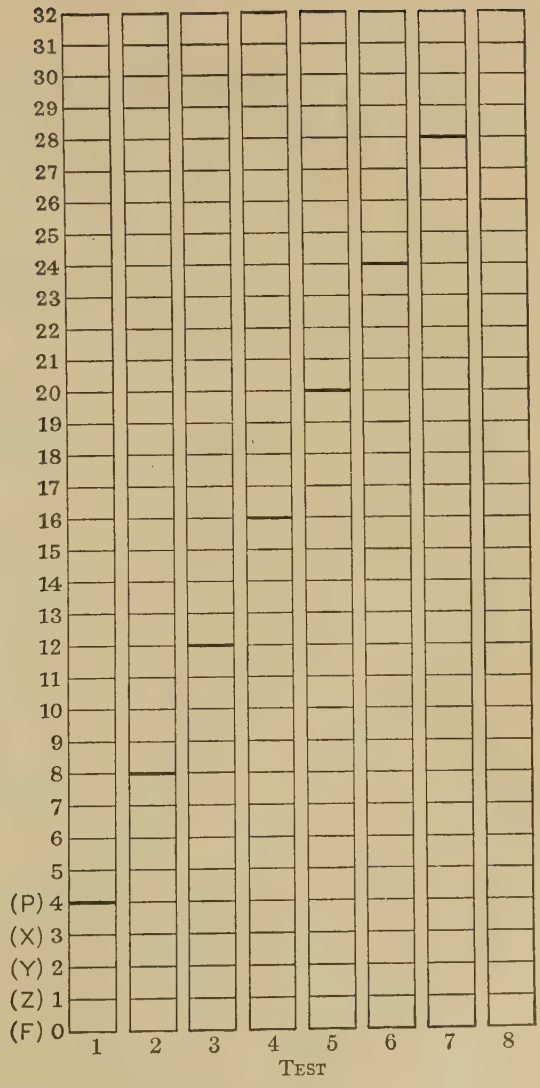
For example, if you could make only the Y standard in three trials in Test 1, you would draw a bar as shown at 1. Then, when you have taken Test 2, you draw a longer bar. If you made a perfect score in Test 2, make your next bar 4 units longer, as shown. If you reached the X standard, make it 3 units longer. If you reached only the Y standard, make it 2 units longer, etc. Each new bar is made longer, as shown in this box.——→

P = 4 units longer
X = 3 units longer
Y = 2 units longer
Z = 1 unit longer
F = 0 unit longer

The heavy lines show where your bars would come to if you always made a perfect score. If there are only seven progress tests for your grade, you will not need the last column.

Progress Chart

Test	Trial	Score	Standard
1	1		
	2		
	3		
2	1		
	2		
	3		
3	1		
	2		
	3		
4	1		
	2		
	3		
5	1		
	2		
	3		
6	1		
	2		
	3		
7	1		
	2		
	3		
8	1		
	2		
	3		



Tables of Measurement

Length

12 inches (in.) = 1 foot (ft.)
3 feet = 36 inches = 1 yard (yd.)
$5\frac{1}{2}$ yards = $16\frac{1}{2}$ feet = 1 rod (rd.)
320 rods = 5280 feet = 1 mile (mi.)

Weight

16 ounces (oz.) = 1 pound (lb.)
2000 pounds = 1 ton (T.)

Time

60 seconds (sec.) = 1 minute (min.)
60 minutes = 1 hour (hr.)
24 hours = 1 day (da.)
7 days = 1 week (wk.)
30 days = 1 month (mo.)
12 months = 1 year (yr.)
365 days = 1 year
366 days = 1 leap year

Liquid Measure

2 glassfuls (or cupfuls) = 1 pint (pt.)
2 pints = 1 quart (qt.)
4 quarts = 1 gallon (gal.)

Dry Measure

2 pints (pt.) = 1 quart (qt.)
8 quarts = 1 peck (pk.)
4 pecks = 1 bushel (bu.)

Number

12 = 1 dozen (doz.)
12 dozen = 1 gross

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